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Photography and World Peace

WALT WINCHESTER

UNDERSTANDING is the foundation-stone of World Peace. It is difficult to love a principle or a nation of which we know nothing. Before men can meet as brothers, on equal terms, they must be able to communicate with each other. What are the media through which this understanding may be brought about?

One of the greatest means is through the arts and sciences—which include practically every branch of knowledge worthy of the name. Every physical manifestation of nature when properly understood, and the knowledge is rightly applied, is a factor for good will and understanding. "When science is learned in love," says a thinker, "and its powers are wielded in love, they will appear the supplements and continuation of a material creation."

Among the many factors which individually and collectively make for a better understanding and good will, is photography. By the term photography I refer not only to the work of making pictures, as practiced by the amateur and professional, but to its products and its applications such as the still-picture, the motion-picture, and photo-engraving. As it has often been remarked, photography is an art and a science; and, as such, it has a double appeal. In other words, the language it speaks is intelligible, not only to the reason, the intellect, the understanding; but is within comprehension of the imagination, the heart, and the soul.

The so-called "universal languages"—such as Esperanto—have been formulated with the principal purpose of creating, through written and spoken words, a better understanding between peoples normally separated by difference in language. These efforts are very well and good; I should be the last to quarrel with their aspirations. Notwithstanding the fact that language and literature form one of my principal worldly interests, I am free to confess that I know that the written word cannot compare with the photograph as a means of grasping and riveting the attention of men, both learned and unlearned.

The emotions play a very important part in the lives of every man and woman. The results of all emotions are reflected in the lives of the state and the nation. Emotions are a contributing factor in the happiness of mankind; life would scarcely be worth the living without them. Yet, sad to say, these same emotions, improperly controlled, are more destructive than wildfire and can make the world a living Hades for those in whom it goes unleashed. One of the chief merits of pictorial photography is that it is a powerful agent in the training of the emotions, a fundamental of peace. Art-photography, like painting, teaches man to delight in the beautiful, to enjoy that which is worthy of admiration; and to direct his emotions along pathways of virtue and purity.

The photographic magazines of international prestige, though they are few, bear pictorial messages upon their pages that strike the chord of fellowship between strangers whose only common bond is the love of a common pursuit—the quest for beauty. The great world-wide pictorial exhibitions promote international competition of a sort that is constructive and friendly. In 1870, a Frenchman, Gaston Paris, said: "Common studies, pursued in the same spirit in all civilised countries, form, beyond the restrictions of diverse and often hostile nationalities, a great country which no war profanes, no conqueror menaces, where souls find that refuge and unity which in former times was offered them by the city of God."

The truth of this statement is beautifully illustrated in the attitude displayed when

"America's new ambassador", the intrepid Colonel Charles A. Lindbergh, landed in Le Bourget Field near Paris, France. All differences between the two nations—if there were any—were quickly forgotten in the common ecstacy of a worth-while constructive conquest of Nature.

This event proves that one of the secrets of lasting good will between nations is found in interest that is appealing to the multitude. The more bonds of common enthusiasm, such as aviation and the silent but potent work of photography we have, the nearer we will be to the millenium.

But do I hear someone saying that photography is not a universal interest? In one respect you are right; but not in the widest sense. Everybody is not interested in pictorial photography—that I will admit. All people do not own cameras, or even wish to make photographs; no one would ever claim otherwise. But I have yet to hear of a person who was never constantly interested in pictures of one kind or another.

Following this suggestion, to strip photography of its artistic, imaginative qualities, and regarding only the stern reality of the record before us, what do we find?

If we follow the admonition of Paul and "seek after those things which make for peace", we certainly cannot neglect education, for surely it is the basis of lasting brotherhood. The photograph—because of its intrinsic interest and the fact that it makes learning a pleasure to be enjoyed rather than a punishment to be suffered—is popularising education.

Strange as it may seem, the U. S. Army, especially the Photographic Section of the Signal Corps, is, through photography, doing a great work in the advancement of peace through education. The men engaged in aërial photographic work, made over forty thousand still photographs and a million feet of motion-picture film during the war. Now the Photographic Section is working just as enthusiastically for peace; shown by the fact that they are engaged in constructive service of the highest type—such as aërial exploration, survey-work, mapping, and pictorial record-work; thus contributing to the material progress of the nation as well as keeping the public informed.

The aërial photographic work of such men as Captain A. W. Stevens of the U. S. Air Corps—whose pictures are truly gems—have given the people of the United States a truer and more glorious conception of their own country and a better understanding of the purpose of the army.

If all nations and all departments of military science in every nation worked as faithfully in constructive enterprise as the U. S. Signal Corps and Air Corps Photographic Section, governments would have little occasion to even think of war.

Photography may be employed as the handmaid and the advocate of the highest moral codes which in themselves are productive of world peace. The motion-picture may be used to excellent advantage for such purposes. A New York pastor, Rev. Clinton Wunder, in predicting the widespread use of the screen in educational and religious instruction, in a conference of religious education said:

"The Bible, the Old Testament prophets, Christ and Paul will live again before the eye of a modern people. The multitude that cries out, 'We would see Jesus', will actually see Him and come to know Him better. Beneath the compelling power of the screen the evils that yet scourge mankind will find a new enemy. Peace, love, understanding, brotherhood, and the Kingdom of Heaven—all these ideals of religion will be promoted by the most vivid and direct means of pedagogy, the motion-picture."

Among the superior films of recent times include such as "What Price Glory?" and "The Big Parade". These pictures portray war in such a realistic fashion that the beholder leaves the theater with a fresh aversion for war. Such pictures as "The Ten Commandments", "Ben Hur", and "The King of Kings", have such a vigorous unaffected style of presentation that the fact that strength, force, and virility are not necessarily vicious and destructive, is honestly and convincingly shown.

We are told that in the diamond district of South Africa, missionaries among the Zulu tribes use the motion-picture as a mediator—a means of gaining the confidence and friendship of the natives. That the foregoing instance is not an isolated case is proved by the reports of travelers. On one trip to the New Hebrides Islands, Martin Johnson made photographs of cannibals he met there. Two years later upon his return to the same district, he showed the pictures to the savages. This is what he says of the occasion:

"They went through the biggest moment of their lives when they saw themselves as they looked two years ago. They cried out the names of each savage as he appeared, and wild was the excitement when they saw a man who had died since the picture was made. . . . For six months we traveled over Malekula, where white men had never trod—from one savage tribe to another we went, and *my moving-pictures were my passports. Word had gone from one end of the island to another, and we were welcomed to tribes where it would have been impossible to*

"LISTEN TO THE MOCKING BIRD" ROBERT R. MILLER
HONORABLE MENTION—OUTDOOR-GENRES

have gone without films!" The italics are mine.

Photography as a factor of prime importance in foreign relations is being widely recognised. Not long ago representatives and ambassadors of the various countries of America were special guests of the Associated Motion-Picture Advertisers. Speakers of the day praised the motion-picture highly as an agent of international amity. Herbert Hoover, Secretary of Commerce, made the following significant remarks:

"The motion-picture brings to this national interchange a new setting; it enlivens a new hope; and it presents a great liability. The distribution of pictures is almost instantaneous. It is but a question of weeks between the appearance of a great picture in Buenos Aires, Santiago, Rio de Janeiro, and their appearance in New York and San Francisco. They speak a universal language. They reach the great mass of people of every nation.

"I trust in the good faith of this great body of men who dominate the industry in the United States to carry out this profound obligation; that is, that every picture of South American life shown to our people, and every picture of North American life shown to the South American people should carry also those ideals which build for that respect and confidence which is the real guarantee of peace and progress."

Typical of the attitude shown by the representatives of the foreign countries were these remarks by Dr. Herman Velarde, the Peruvian Ambassador:

"Its lenses receive and treasure the palpitating impression of life itself, the astonishing conquests of human achievement and the greatness and pettiness of man for all time, in all latitudes and among all races, and proclaim through the silent yet unmistakable appeal of its flashes, that Man is one and Earth is one."

Briefly but impressively Will H. Hays, President of the Motion-Picture Producers and Distributors of America, spoke of the fundamental aim of the motion-picture.

"It is the purpose of the motion-picture industry to develop relations of peace and amity with all nations of the world. The industry's leaders are one in the conception of their duty in this regard.

"We are determined that at every opportunity a true portrayal of American life and ideals shall be given to the world and that to the nationals of all countries shall go a true message of the lives of the nationals of all others.

"Every nation shall be honored and shall deserve honor on the screen!

"The picture is the universal language. So will it be written for the universe."

The Stage as a Studio

ROBERT R. MILLER

IF a photographer who has ever worked to any extent with actors in a theater should some time feel an urge to tamper with Shakespeare's immortal epigram, "All the world's a stage", he would probably convert it into "All the stage's a studio"; for here he finds one of the most fascinating laboratories for evolving an abundant variety of pictorial material that has yet enveigled bulb and plate. Not only problems in composition and lighting arise to tax his ingenuity; but personality, costume, group and ment of the actors, and, consequently, blurring of the images on the plate.

The illustrations used in this article were made according to rules worked out in the Little Theater of Dallas, Texas, whose stage, when the scenery is set up, measures 20 by 20 feet, an area of 400 square feet. The lighting-equipment consists of four circuits of footlights, white, amber, red, and blue, and four border circuits with similar colors, each having nineteen globes of sixty-watts each. In practice, the red and blue circuits are not used for making pictures because

NO. 1 "JOSE WILL NOT BEAR THE CROSS" FROM "EL CRISTO" ROBERT R. MILLER

character-studies come forward to stimulate his imagination and develop his mastery over technique, affording, all in all, a highly educational as well as delightfully entertaining aspect of picture-making.

Stooping from the sublime to the ridiculous, the camera-man ranges in the scope of his activity from depicting the ultraethereal atmosphere of some fairy kingdom to simply recording the minutest details of a special stage-setting which the producer wishes to exploit in a theatrical journal. However, these two branches of the work, being the widest of extremes and the exception, rather than the rule, confront the photographer but rarely, so that his field of endeavor will be more or less restricted chiefly to the average run of theatrical pictures.

The principal problem before the theatrical photographer is that of obtaining adequate illumination, easily controlled, so as to reduce his necessary time-exposures to a minimum in order to obviate any possible chance for move- of their low actinic value. Consequently, there are thirty-eight 60-watt white globes, totaling 2,280 watts; and thirty-eight 60-watt amber globes, totaling 2,280 watts, or 4,560 watts in the footlights and border lights combined. In addition, there are two 500-watt flood-lights, used offstage for general illumination in the wings, and one 250-watt spotlight for emphasising various characters or for some special lighting-effect. This brings the grand total of watts up to 5,810 to illuminate 400 square feet of space in making full-stage pictures. Although only a small stage, this one is equipped electrically in practically the same proportion to its size as larger ones are, so that the suggestions given herewith will apply to almost any theater in which the camera can include the entire stage-picture from a distance of 25 to 50 feet out in the auditorium. All of the various circuits are always turned on full while making pictures, the movable flood-lights and spotlight being shifted about wherever needed to give general or supplementary

illumination. Due to the nature of the scenery, it is sometimes difficult to obtain well-balanced lighting, in which event the photographer must simply make the best of a bad bargain.

In order to obviate the danger of the actors' moving, the lens must be used at the widest aperture that will still preserve sufficient depth of focus for the scene, and the film or plate must be of the fastest type to reduce the exposure to a minimum. It has been found that using a lens at F/6.3 with an extra-fast emulsion, such as Eastman's Super-Speed portrait film or Hammer's Red Label plate, with the lighting as indicated above, will require an exposure of approximately 5 or 6 seconds, depending on the general tone of the scenery and the lightness of the actors' clothes. The F/6.3 stop seems to give the best average depth of focus for cameras up to size 8 x 10, while keeping the exposure within reasonable limits. The shorter the length of focus, the greater will be the depth of focus. If ordinary speed-films and plates are used, the exposure will have to be prolonged to 10 or 12 seconds, which taxes the actors too much. Illustration No. 1, "Jose Will Not Bear the Cross" from "El Cristo", is an example in point. Whenever there is much variety of color in the scenery and costumes, the use of panchromatic films or plates without a color-filter is strongly advised, since by electric light—which has considerable yellow already in it, thus eliminating the need for the ray-screen—they seem to be about as fast as the most rapid "color-blind" emulsions. "Close-ups" of groups or character-studies made by using a 500-watt flood-light as the main light-source about 10 to 12 feet from the subject will require approximately 3 to 4 seconds' exposure with extra rapid or panchromatic emulsions. Illustration No. 2, "So You Marry Mit Him?" from "Rip Van Winkle", is an example of a close-up made with a panchromatic film without a filter.

Flashlights, although making almost instantaneous exposures possible, are to be avoided except in cases of emergency, because they have a tendency to destroy roundness and perspective by their too contrasty "chalk-and-soot" effects and give lighting-effects entirely different from those seen in the play. Also, the uncertainty of the shadows precludes foreknowledge of how the exact lighting will turn out. Flashlight-pictures will have to be resorted to, of course, on stages where the electric equipment is limited. Whenever used, especially on "close-ups", the flash should be screened through silk or gauze so as to soften the contrasts.

Arrangement of the character for full-stage pictures, and the posing of individuals for

NO. 2 "SO YOU MARRY MIT HIM?"
FROM "RIP VAN WINKLE"
ROBERT R. MILLER

character-studies, should, of course, always be done with respect for the laws of group and figure-composition, paying especial attention to balance, principality and contrast. Illustration No. 3, the "Love Me, Love My Dog" scene from "The Youngest", may be consulted on this score, where the man with the dog is the center of interest on a crowded stage. Full-stage pictures should be chosen from some point of high tension in the action of the play to inject animation into the scene, and character-studies may be either action-pictures or straight portraits. The stage-director, being usually a man versed in the principles of art, will naturally prove invaluable in assisting with the posing. The actors should speak a few lines leading up to the scene to be photographed, at which point they should be called upon to hold and to brace themselves with the utmost rigidity while the photographer counts aloud for their benefit. Often small, intimate scenes from the play can be made

NO. 3 "LOVE ME, LOVE MY DOG" FROM "THE YOUNGEST" ROBERT R. MILLER

effectively by moving the camera up to the footlights and "shooting" at close range.

Development of theatrical negatives is very well taken care of with pyro-elon or M. Q. formulas used in a tank, the M. Q. usually proving best for portraits and "close-up" character-studies where softness is desired. Since stage-pictures, if made with a small camera, must be enlarged for publicity-purposes, development should not be carried too far, as dense negatives print too slowly to be of much practical value. This warning applies especially to panchromatic emulsions, which are very contrasty when used without a filter.

Printing-paper should be selected to harmonise with the general spirit and atmosphere of the play and with the scenery. For tragedies or serious drama with somber tones in the settings, or for large heads of men in character-roles, a rough buff mat does well, and comedies seem to take on an appropriate sparkle on semi-gloss. Illustrations No. 4, "This Marriage Cannot Be", from "The Cajun", is a type to be printed on rough buff mat. A smooth mat answers most

NO. 4 "THIS MARRIAGE CANNOT BE" FROM "THE CAJUN" ROBERT R. MILLER

demands for close-ups of women, while Old Master or canvas-finish imparts a peculiar atmospheric touch to negatives or artistic or pictorial quality. Silk or linen surfaces are seldom suitable except for pictures involving elaborate costumes, such as in Colonial, Shakespearean or operatic productions. Glossy prints, of course, are required for publicity-work among the newspapers and magazines.

Diffusion can often assist materially in getting the atmosphere of a romantic play "over the footlights", when for any reason it is desired to convey the idea of unreality to the beholder. The shimmering outlines created by soft-focus lenses or disks would be very pleasing in portraying the fairy woodland scenes in Shakespeare's "Midsummer-Night's Dream", for instance; the retrospective second act with its period costumes of fifty years ago in Martin's "Smilin' Through", as well as the vision-scene which closes the play; or the spirit-world character of Peter Grimm in Belasco's celebrated drama of the same name.

Special or trick lighting-effects are very easily accomplished either for full-stage or close-ups. To simulate daylight entering a window, a 500-watt flood-light is placed outside, just out of range of the lens, and the window-opening is screened with cheese-cloth. The effect is shown in Illustration No. 5, the parchesi game scene from "Mrs. Partridge Presents". For firelight, a 500-watt condensed projection globe is placed in the grate and shielded from the camera, and no footlights or border lights are used. For mystery-scenes these lights are also omitted, and points of interest and the various characters are illuminated by "baby" spotlights and foot- and-border spotlights. The exposure will in these cases have to be increased somewhat. Sometimes the effect is ghastly, as in depicting the discovery of a murder, or in a glimpse of the ghost of Hamlet's father. In the latter instance, diffusion would enhance the vision-effect.

The professional stage-photographer will probably find the 5 x 7 and 8 x 10 sizes best suited to his purpose because they require no enlarging, but the amateur can make out very nicely with the 3¼ x 5½ and the 4 x 5 cameras which permit the use of a ground-glass for focusing and cut-film or plates. These smaller sizes have considerable depth of focus and enlarge well up to 6 x 10 and 8 x 10 respectively. Hand-cameras with fast lenses, F/4.5 and F/5.6, and using roll-film, can be employed by amateurs to good advantage on small stages; but it is here vitally important to measure accurately the distance from camera to subject when using the focusing-scale at close range. With the scale set at 25 or 50 feet, hand-cameras can be used to advantage for making dull-stage pictures from out

NO. 5 PARCHESI GAME FROM "MRS. PARTRIDGE PRESENTS" ROBERT R. MILLER

NO. 6 "HENDRICK AND MEENIE"
FROM "RIP VAN WINKLE"
ROBERT R. MILLER

in the audience. Single-lens cameras, however, are so slow as to be impracticable. Even a vest-pocket camera with a fast lens will make good close-ups for character-studies which will enlarge excellently to about 5 x 8 if the original negative is needle-sharp. Illustration No. 6 is an example of a vest-pocket picture which will stand considerable enlargement.

And so, to those who decide to embark upon a photographic journey to the Land of Make-Believe, may theirs be a *bon voyage!*

[We are indebted to Mr. Miller for this practical and interesting account of his experiences with a camera in the theater. Although it must be admitted that he was favored to some degree by his being welcome to use lighting-equipment, scenes, and individual actors as he desired, the fact remains that Mr. Miller has shown others the way to a very interesting branch of photographic activity and has demonstrated his skill convincingly.

In all probability there are other contributors to our pages who have had experience with theater-photography. We believe that they will find this article interesting; and, perhaps they, too, may be willing to give other readers the benefit of their experiences. It is by these helpful, practical, and stimulating articles that we all learn together and are able to serve.

We might point out that the popularity of the amateur motion-picture play will afford additional opportunities for the still photographer to obtain attractive models, artistic settings, and good artificial lighting. We have all seen and enjoyed the many still photographs made of striking scenes in feature motion-picture productions. This work is usually done by a pictorially trained photographer who can utilise the material to advantage. So it can be with amateur theater or motion-picture plays. There is exceptional material at his disposal. It is for him to make the most of it.—EDITOR.]

The Schools of Photography in Europe

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THE writer, among others, has called attention to the lack of adequate and comprehensive instruction in photography in this country; and, as there now appears to be a certain amount of interest developing in the subject, especially in the motion-picture industry, it seems well to see what has been done in this direction in other parts of the world.

In Great Britain, instruction in photography and photo-engraving is offered at three institutions: the Polytechnic School of Photography, the London County Council School of Photo-engraving and at the Manchester Municipal College of Technology.

The Polytechnic School of Photography was opened in 1882 under Howard Farmer with an enrollment of forty. The growth of the institution was comparatively rapid, and in 1911 a new building was erected, designed especially for its use, and equipped throughout with the most modern conveniences. It contains several portrait and commercial studios fully equipped for artificial light, a number of darkrooms, printing-rooms, a large retouching-hall and mounting and finishing rooms.

The main object of the institution is the training of professional photographers. Nearly every branch of practical photography is taught, including photo-engraving.

There are two courses: one for students having some knowledge of photography and wishing to prepare themselves for professional work, and another for those having no previous experience. The first requires one year and the second two for completion.

Its courses are thorough and, from the standpoint of the practical worker, comprehensive, and its students have made for it an enviable reputation, many of the most distinguished professionals not only in Great Britain but throughout the British possessions having been former students of the Polytechnic.

At the Manchester Municipal College of Technology the work in photography and photo-engraving is under the direction of Mr. Chas. W. Gamble, F.R.P.S., who is assisted by three others. The full course covers two years and requires five hours per week during the first year and seven and one-half hours per week during the second year. The work of the first year is concerned with the theory and practice of photography, and the five hours per week is divided into an hour of lecture, an hour and a half of demonstration and two and one-half hours in negative-making and printing. The second year is devoted to portraiture, retouching, printing, mounting and enlarging. These last are termed "practical" courses and no lectures are given except in connection with the laboratory-work.

In photo-engraving a two-year course is likewise given, consisting of five hours' work per week in the first year and seven and one-half hours per week during the last year. A course of one year is also given in photo-lithography. The work in these photo-mechanical sections is particularly thorough and comprehensive.

The London County Council School is devoted wholly to photo-mechanical processes, and provides instruction in all branches of photo-mechanical printing. The school is under the direction of Mr. A. J. Bull, F.R.P.S., who is assisted by eight other full-time instructors and ten visiting teachers.

A course in photography was given by Chapman Jones in the University of London for a number of years prior to the World War, but after having been allowed to drop at this time has not yet been re-established.

In Germany there are a number of schools devoted wholly to instruction in photography and photo-mechanical processes, and work on the subject is found much more frequently in the technical high schools and the universities than is the case in other countries.

At Berlin is the Deutsche Schule für Optik und Phototechnik (German School for Optics and Photo-Technology) under the direction of Dr. A. Miethe. At Dresden is the school organised and maintained by the Deutsche Photohändler Bund (an organisation of the manufacturers and dealers in photographic materials) under the direction of Dr. Robert Luther. A course of one year is offered at this institution, the time being divided as follows:

Study of photographic materials.....	48 hours
Photographic chemistry.....	36 hours
Photographic optics.....	24 hours
Scientific and technical photography.	12 hours
Photographic practice.....	144 hours
Kinematographic projection.....	24 hours

At Dresden also is the Wissenschaftlich-Photographisches Institut der Sächsischen Tech-

nischen Höchschule-Dresden. This, as the name indicates, is a branch of the technical high school of Dresden and is devoted entirely to the science of photography and to its scientific applications. Its function is primarily the training of men for industrial chemists to the photographic industry and for the investigation of the problems of photographic technology and not for professional photography. The institution is under the direction of Dr. Robert Luther and Dr. E. Goldberg and is amply provided with laboratories for plate and lens-testing, sensitometry of plates and papers, and for photomicrography, Röntgen-ray photography and the like. It is empowered by the State to grant a Doctor of Science degree to those who meet the requirements for this degree.

At Leipzig is the Staatliche Akademie für Graphische Kunst und Buchgewebe (National School for the Graphic Arts and Book Industries) having a division of photography. The building occupied by this division is perhaps the finest of any school of photography in Europe being a veritable museum containing large numbers of works of art and most elaborately furnished. Unfortunately, its work cannot be said to reach the same standard. In photography, the work is devoted almost wholly to pictorial photography; but in photo-engraving the work is of higher standard and the institution may, in fact, be considered primarily as a school of the photomechanical processes.

At Munich there is the Höhere Fachschule für Phototechnik (Professional School of Photo-Technology). This was established by Emmerich in 1899 and was acquired by the state of Bavaria in 1921. The school is provided with five studios, some equipped for artificial light, two developing laboratories, one for beginners and one for more advanced workers, and other rooms for printing, enlarging and finishing. The work offered is wholly practical and is designed for the training of men as professional workers. Lately a section of kinematography has been established under the direction of Dr. K. Wolter.

The Photographische Lehranstalt des Lette-Vereins in Berlin grew out of a foundation established by Wilhelm Adolph Lette in 1844, but it was not until 1890 that the school of photography was founded. In 1909, it was taken over by the City of Berlin. The work offered by the institution may be divided into four principal groups:

1. Professional photography.
   - *a.* Portraiture.
   - *b.* Industrial photography.
   - *c.* Retouching and finishing.
   - *d.* Photo-mechanical processes.
2. Applied photography.
   - *a.* Radiology.
   - *b.* Clinical photography.
   - *c.* Photomicrography.
3. A separate and distinct course in metallography.
4. An introductory course in general photography.

Two years are required to complete the work of the first, second, and third groups. The short introductory course designed for amateurs and beginners requires only three months. All students must have completed the secondary schools of Berlin and must be over sixteen years of age. The quarters are old and rather ill-arranged; but nevertheless the institution is quite active and some excellent work is turned out by its students. Special attention may be called to the very complete course of instruction in radiology and metallography. The laboratories devoted to these subjects are adequate and the equipment is of the very latest German types. A division of kinematography has been established recently.

The most famous school of photography in Europe, however, and perhaps in the whole world is the D. Ö. Staatliche Graphische Lehr-und Versuchs-Anstalt (National Establishment for Instruction and Research in the Graphic Arts) at Vienna. This is one of the oldest schools of photography in the world, having been established in 1887 as the Imperial and Royal Establishment for Instruction and Research in the Graphic Arts—the title Imperial and Royal has been dropped since the War. Until a year or so ago the school was under the direction of Dr. J. M. Eder, known all over the world as one of the foremost authorities on the theory of photographic processes, author of the standard reference work on photography—the Ausfuhrliches Handbuch der Photographic—Complete Handbook of Photography)—and distinguished for his investigations in the science of photography, photo-chemistry and spectroscopy. He was assisted by an especially competent staff, the names of some of whom are known wherever men are familiar with the problems of photographic technology.

The work of the institution is divided into four parts:

1. Photography and photo-mechanical processes.
2. Photo-chemistry and research.
3. Typography, lithography and book industries.
4. Museum and library.

The normal program requires three years for

A BEGGAR
LADIOLAV KOZECHUBA
HONORABLE MENTION—OUTDOOR-GENRES

AN INDIAN HARVEST — A. J. PANDIAN

HONORABLE MENTION—OUTDOOR-GENRES

completion. One year is devoted to specialisation. There are special courses for professionals and shorter courses for amateurs, assistants and men of science.

Students must show satisfactory records from the public schools, and the number admitted each year is limited to fifty. Students whose previous training permits them to enter the work of the second year are allowed to do so after having passed an entrance examination on the work of the first year.

The work of the first year is devoted to the technique of negative-making and printing in various mediums, and the second year takes up more in detail portrait, landscape and technical photography. The third year is devoted to the science of photography—a branch of the work in which this institution is especially strong. Among the subjects covered in this year are the history of photography, the chemical action of light, spectra of the sun and of artificial lights, spectrography, the color sensitising of emulsions, theory of filters, sensitometry, testing of objectives, chemistry of photographic processes, emulsion-making and the like.

Professor D. Valenta in his laboratories covers the physics and chemistry of photography, and also the research-work in sensitometry and spectroscopy, for all of which he is well equipped. Although the building is old and out-of-date and does not impress one as being especially well suited to the purpose, the equipment is, on the whole, excellent and complete and the arrangements logical and satisfactory.

The school co-operates with the University of Vienna in the exchange of professors and in providing facilities for photo-chemical investigations for the degree of D.Sc. in the University.

The library is one of the finest and most complete anywhere, especially in German books and periodicals, although most of the journals from other countries will be found on the shelves. The museum is rich in historical material, among the other exhibits being one of over three hundred objectives illustrating the development of the photographic objective.

It is doubtful, however, if any of these institutions will be the equal of the College of Motion-Picture Technology at Columbia University in the City of New York which is now in process of establishment. Although the proposed college is to be devoted primarily to the needs of the motion-picture industry, every branch of photography will be represented in the work of its faculty and laboratories. It will be an integral part of Columbia University, consequently its

work will be of the same high standard as the other branches of technology at American Universities; and, in some respects, the standard will be higher, for it has been tentatively decided that two years of regular college work in an accredited college or university will be required for admission. The work of the college will require four years, two of which will be devoted to the science of photography and photographic processes and two years to specialisation along some given line. The four years of work will lead to the usual Bachelor of Science degree, and for those who proceed with graduate work it is proposed to establish the degree of Master of Motion-Picture Technology. The establishment and maintenance of such an institution is an ambitious undertaking and is one which should receive the support of everyone interested in photography, whether professional or amateur. Although the financial support of the institution seems to be assured, there will be plenty of opportunities for assistance in the many problems that must be solved before it becomes a reality, and it is to be hoped that the response on the part of the profession will be generous and ensure the success of the plan.

Photography and the Teacher

MARY M. HOBBS

THE mention, in PHOTO-ERA MAGAZINE, of photography in schools is of great interest to me. For years one of my hobbies has been photography; and from time to time I have used it in connection with my work as a teacher. As my time is limited, I cannot write the account of my last and most successful experiment, as I would like; but you may be interested in the results of the pupils, efforts to improve their weekly paper by making pictures about the school. We have a small, but very active camera club, with the members using their own cameras. They have not only made pictures for "Hi-Times", but for the annual. They did not make all the pictures for that, however.

At one time, the question of a class in photography in the school came up, and I wrote out the arguments, for and against, as they occurred to me. You may be glad to think them over.

PRO:

1. We would have more and better material for pictures of school-interest for use in school-publications.

2. We need little outlay of money to make a start.

3. By spending a considerable sum we could develop the project almost indefinitely.

4. It furnishes a half-year subject, as an elective, with no pre-requisites.

5. It gives an opportunity for intensive study of applied science.

6. It is a subject of almost universal interest. We are living in an age of pictures. Almost everyone will make them sometime in his life.

7. It fulfils some of the objectives of education in a striking way—right use of leisure-time, vocational education, citizenship,—since the members of the class will be rendering a service to the school—worthy home-membership.

8. It should increase art-appreciation, and interest in nature-study.

9. It gives opportunity to teach thrift, order and efficiency.

CON:

1. If the course is entered in the curriculum merely for the sake of getting work done for the school-publications, the cost in "teacher-power" will not balance the money-cost.

2. If it takes a skilled amateur six or eight hours to make, develop, and properly print a dozen films and the prints, forty to sixty that are usually wanted from them, it may be too great a tax on pupils' time.

3. It must have co-operation on the part of leaders in other activities, that is sometimes almost impossible to get.

4. The problem of after-school work arises. Pupils are reluctant to do this, because of outside activities.

5. It would not be a subject for college-entrance. It might be termed a "frill".

6. It might be said to be too specialised a subject for a secondary school.

7. It demands a certain dependableness on the part of pupils which would be difficult to ensure.

8. If the course led to advanced work in connection with the publications, the cost of equipment would be considerable.

9. Pupils would necessarily need to spend money for materials during the term, which might meet with objections at home and this is often likely to have effect.

On the Hemispheric Source-Theory of Light-Intensity

F. MORRIS STEADMAN

IF the diagonal measurement of a room be taken, a single light-source near the center of the room, and half of that diagonal above the reading-level of the room, will create in the extreme corner one-half the intensity created directly under the source. If the height of the source is only two-sevenths of the diagonal above the reading-level, the intensity in the corner will be only one-fourth that below the source. This is due to the fact that in the first instance the corner is approximately one and four-tenths, and, in the second example, twice as far from the source, as is the reading-height directly under the light.

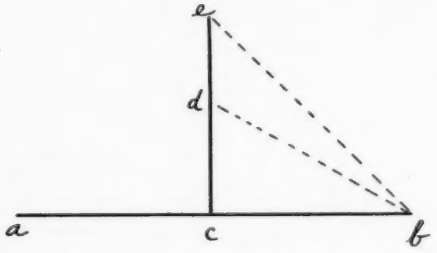


FIGURE 1 F. MORRIS STEADMAN

This is a matter of *relative* and not absolute brightness and would, therefore, apply to the illumination from a lighted match at the correct position as well as to that from the strongest arc-light.

Light a match or hold a candle or lamp very close to a wall. It will be seen that the spot that is quite uniformly illuminated will be very small. On retiring the light-source from the wall, the spot that is quite evenly lighted becomes larger—though, of course, less intense—and it is easy to ascertain the distance that will create, over any given size of area, a sufficiently even illumination.

Distance is the factor for determining this problem, and the mental picture of spreading rays is the one that rightly enters in its solution.

Once the position of the source has been determined, however, the intensity of illumination on the area must be obtained by choosing one light-unit that has the power to give it; or else by choosing weaker units and placing in the group sufficient of them to create the desired intensity of illumination over the area.

The natural truth is that each letter on the page, as may be used to test the illumination, is illuminated independently of the others on the page. To express it differently—the rays that illuminate any certain letter or mark on the page do their work in making that identical letter visible. These same rays do not assist in the illumination of any other letter. The practical problem is, therefore, to ascertain how a single letter is illuminated. If the scheme has been carried out with a single, strong source, the conditions are that that source occupies *a certain measurable part* of the hemisphere of space that confronts the printed page and from which it is possible for light to come to illuminate it. For example, after sunset if this printed page be held horizontally out in the open, the whole hemisphere that confronts it will be completely filled with sky; and each letter, therefore, would receive complete hemispheric illumination.

Within the room, however, the single, strong light-source occupies, as has been said, a measurable fractional part of this whole hemisphere of solid angle. There are two fundamental elements, however, in every light-source that determine its power—that of solid angle just mentioned and that of the intrinsic intensity of the source itself. Thus, if instead of one very strong source, a group of weaker light-units were chosen, then each one would add its measurable solid angle to the group as might be found necessary in order to obtain the desired intensity of illumination.

FIGURE 2 F. MORRIS STEADMAN

By the first method there would be utilised little solid angle and great intrinsic intensity; and by the second method, weaker intrinsic intensity and greater solid angle dimension.

I hold it to be true fundamentally that there is no other way to increase the illumination on a lighted area other than by increasing the intensity (intrinsic) of the source or by increasing the solid angle that the source occupies relative to a point on the illuminated area. It will be well to state here that whenever the term "solid angle of the light-source" is used, the meaning is always "relative to a point on the surface that it illuminates".

Let us examine for a moment the character of illumination from a common window. Suppose that we have a window three feet wide with an ordinary opaque shade as well as an opaque curtain that can be moved from side to side. If a book be read at a distance of six feet from the window, each letter will receive upon it a pencil of light converging from a solid angle of approximately thirty by thirty degrees, if the shade has been drawn down so as to make the opening about square. On viewing the sky from the position of the page, it will be noted that a certain expanse of it can illuminate the book. Now, if each of the curtains be drawn half way across the window-opening, its solid angle will be reduced to fifteen by fifteen degrees or one-fourth its former dimension; and the page will have only a fourth of its former intensity; since only one-fourth of the former section of sky will now be able to illuminate each letter. Return the shades now to their former positions, leaving the opening three by three feet, or thirty by thirty degrees in size, and take the book to a distance of twelve feet. By doing this it will be easy to see that the larger opening has now been reduced to fifteen by fifteen degrees, the same dimension as the quarter-sized opening at six feet distance, and that the intensity that results is the same in the two cases. It is seen that the law of intensity is the same whether the solid angle be reduced at a fixed distance by means of the curtains or by doubling the distance between the source and the surface illuminated by it. In the first instance, the converging pencil of light is reduced by reducing the area of its base; and in the second case it is reduced to the same form or solid angle, by making the pencil of rays longer, the base remaining the same. It should be clear to the reader, however, that *any deviation from this idea of converging rays would remove the considerations from nature's own scheme of illumination.*

With another example, it will be well to increase instead of reduce the intensity, as was done in the former one. Thus it may be possible to make the theory clearer to the reader.

Imagine a candle illuminating a card at about eight inches distant. Say that the height of the flame measures close to ten degrees relative to a point on the card, or relative to the distance. If the flame is one-fifth as wide as it is high, it will occupy a solid angle of two by ten degrees. Now, if three more such candles be added the total width would be four by two, or eight degrees; and the total solid angle of the four flames eight by ten degrees, or, as we may say, eighty square degrees. Four times the intensity would result. Then a single flame at four instead of eight inches will have a height of twenty and a width of four degrees, which gives the same solid angle of eighty (4 x 20) square degrees, and the intensity that results, will, *for this reason only,* be the same as with the four flames at eight inches.

If we make now a mental picture of the rays that are spreading outward from the candle-flame, it is logical to observe that they would illuminate well four times as large an area at eight inches as they would at four inches. If, however, we try to explain the *intensity* by this diverging pencil, we will, as a matter of fact, do what every physics book in the world does erroneously at this time, and will thereby discover the reason for the ignorance that now exists in the public mind regarding light-intensity.

There never has been, it seems to me, any popular understanding of the common law of perspective in its application to light-intensity. Everything in Nature is larger relative to a short distance than it is relative to a greater one. That is to say, things grow larger in the visual field—or in solid angle—as one draws near them. If the painter must paint two houses of the same size, one being twice as far away as the other, the nearer one will occupy four times the area on the canvas that the distant one will.

Nothing that has dimension in nature can escape this law of perspective. *Light-sources are subject to it the same as other things.*

We rush along the highway in our car, and some small speck in the distance resolves itself into a building. It increases in size in the visual field as we draw near it; and when we pass, it again becomes a speck and disappears in the distance. Under such conditions the illumination on the car remains the same, because of the sun and the sky that continually illuminates it as it goes along its way. This complete hemisphere of light stays over one constantly and creates a stable condition of brightness, except for local changes, as when a cloud hides the sun or when the light grows brighter in the morning or weaker toward evening. But let us take the road now in the dark-

ness of night. Suppose that there is a burning building, completely in flames near the road.

Note that the hemisphere of space that confronts us is exactly the same geometrically as in the day time. It is now occupied, however, by a sky that is practically without intensity as compared to the intensity of the burning building. As we come in sight of this building, it is as though a small spot of light had taken its place within the space "from which light can come", or in the confronting hemisphere; and as we approach it, it steadily grows larger and larger to the view; and, in fact, occupies more and more of the hemisphere into which it fits always as an integral part. Should we approach a little nearer to this flaming building than its own width—supposing that it is practically square in form—it will come to occupy very close to one-eighth of the whole hemisphere that confronts a vertical section of the car that faces toward it. *At all times the intensity of illumination has varied directly with and because of the growth of solid angle in the building as it has been approached*, its intrinsic intensity having remained constant.

In the above example the solid angle and the resulting intensity have been increased according to the common law of perspective, which is the law of inverse squares. A thing is four times as large—twice as high and twice as wide—at a certain distance as it is at double that distance; and *if that thing is a luminous body with the rest of the field in darkness*, it therefore creates four times the intensity.

Take another example: We are reading by the light of an ordinary lamp, with the wick turned rather low. On raising the wick the flame gets higher, thus occupying more solid angle relative to the distance to the page that we are reading and creating correspondingly more brightness on the page. Then, if we hold the page twice as close to the lamp, its flame becomes twice as high and twice as wide in angle and four times as large in solid angle relative to each letter; and who can doubt that it is for this very reason that the intensity of illumination produced at this closer distance is four times as great?

The books state truly: "Intensity varies inversely to the square of the distance". But it is also true that: "The solid angle of a light-source varies inversely to the square of the distance". Therefore, the fundamental truth: *Intensity varies directly as the solid angle of the light-source.*

If *a* equals *c*, and *b* equals *c*, then *a* must equal *b*.

To accept the truth that the letters on a page are illuminated independently of each other and that each letter is illuminated by the rays that converge upon it from the light-source, is to create in the mind a true mental picture of a cone or pencil of converging rays, whose base can grow larger by adding extra light-sources at a fixed distance, or by bringing the light-source closer to the illuminated area.

Variations of effect are always due to variations in the cause. This logical fundamental, however, is departed from by every physics book in the world at this time. The illustration used in the books is generally one of a candle-flame with lines going out from a single point near its center and spreading into space.

The whole flame is the working cause in the intensity problem presented, and its complete body is left unaccounted for in the analysis of that problem. Only from a single point on its surface have rays been drawn that spread outward and arrive at lines or areas placed at distance 1, 2, and 3.

In selling light, it is convenient and satisfactory that a gas-flame or electric bulb be measured as to its illuminating-power, or candle-power. That this method does not reach down to the fundamental truth of intensity, however, is easily demonstrated: Any such light-source one-quarter as great in area and having four times the intrinsic intensity of another, will have the same illuminating-power as that other, just as a small window near noon will give the same intensity of illumination as one four times as large when the sky, later in the day, is only one-fourth as intense.

The trouble from the beginning, perhaps, with Kepler himself in the seventeenth century, when he discovered the law of inverse squares, was that he made the mistake of not considering large light-sources, but confined himself to the investigation of small ones; *probably holding always in mind the mental picture of spreading rays.* If he noted the fact that *at a fixed distance* an illuminated area could be larger or smaller without altering its intrinsic brightness, then he committed the error of utilising this area, *which is not a factor of brightness*, in explaining intensity-variations for distance.

Had Euclid honored the solid-angle dimension of the sphere with unification, as he did the dimension of angle in the circle, and taught that intensity varied directly as the solid angle of the light-source, we would have been prepared, at the inception of photography, to define a practical unit for the measurement of the photographic brightness of ordinary surfaces, and would also have evaluated lens-stops in this dimension, and would have been utilising these values today in the practice of photography, with the same matter-of-fact simplicity

WORKMEN

J. V. D. BUCHER

HONORABLE MENTION—OUTDOOR-GENRES

that we use the units of distance and volume, and the many other units that are now popularly understood.

The world of teachers and students are continually deceived by the seeming plausibility of the idea that light weakens by spreading. One of the reasons that this error has not been discovered long ago is that no practical problem of intensity is introduced in the book-illustration. It is shown that spreading rays strike upon fine lines or upon plain surfaces at different distances. There is no practical problem of great consequence in which fine lines need be examined as to their intensity, and the plain area hides the fact that when an area is printed or spread over with a photographic emulsion, there are small things upon it, *the independent illumination of which must be accounted for.* Such small units are, in fact, actual illuminated things that have to be distinguished from each other. Like all other and larger things, they are lighted by the light-rays that come to them or converge upon them individually from space. The fundamental questions are: How intense, intrinsically, is the light source and how much of the hemispheric field does it occupy?

The great French astronomer, Camille Flammarion, in Francis A. Welby's English translation of one of his books called "Astronomy for Amateurs", says on page 157: "This splendid orb—he speaks of Jupiter—courses in space at a distance of 775,000,000 kilometers (488,500,000 miles) from the sun. Hence it is five times (5.2) as remote from the orb of day as our earth. . . . At that distance the sun displays a diameter five times smaller than that which we see, and its surface is twenty-seven times less extensive. Accordingly this planetary abode receives on an average twenty-seven times less light and heat than we obtain". He shows that the fundamental truth is the "extension" or solid angle of the sun's surface relative to the distance to each planet.

This is a true picture of converging rays, and I will leave my argument here and will show in the next article just how the physical units that are made possible by this idea of convergence, fit into the scheme of popular education.

Photos Without Tears

MARY ELIZABETH PRIM

We'll have our pictures took,
And we'll put them in a book,
For the visitors to look. . . .

YOU need no longer be dull in Boston if you have twenty-five cents and a face. Go to the new Photomaton, in Filene's basement, some noon, and see how romance and adventure have been injected into the hitherto grim business of having your pictures made.

The Photomaton—someone should think up a more sprightly name for it!—automatically takes and develops eight pictures of you in eight minutes. I, alas, lack the technical equipment to describe the process; but I can stand witness to the extraordinarily enlivening effect it has on the hordes who gather to try it.

A little girl in a rakish beret and a blue smock coos, "Next, please", and you pop into one of the three booths. You seat yourself on a white enameled stool, which has to be adjusted to your height, recalling the piano-lessons which added to the rigors of your early life.

"Drop in your quarter, please." You do, and instantly there beats upon you a great white light. At your right elbow are rows of eager faces, breathlessly intent upon you. You feel like Lindbergh before repetition wore the bloom off the welcome.

"Look into the camera and smile," orders the blue-smocked attendant.

You gaze straight ahead with bright, imbecile concentration.

"Look to the right, and smile!" you are urged.

Which you do, and encounter the gaze of a solid phalanx of onlookers, many of whom titter hysterically.

"Now, to the left and smile!"

You obediently shift your profile which now feels as if the clay had just been poured on for the death-mask.

"Look at me, and please smile," coaxes the attendant, peering in at you with a driven look.

"Fine! Now, to the other side and smile!"

The crowd on the other side has increased, and regards you with unwavering interest, commenting on your features in a free, though kindly manner. Fortunately. you cannot hear the comments.

"Into the camera and s-s-s-s-s-smile!" Whereupon, in a last desperate effort at joviality, you grin with such fury that the muscles of your neck ache all afternoon.

The attendant is so overcome that she simply murmurs, "Now left—now right!" and allows you to retain your usual grieved look for the final poses.

You sneak out of the booth feeling that you have betrayed her. The little group waiting for their developed pictures instantly take you to their heart. They have preceded you to the stake, as it were, and now are one with you. At once you all begin describing your sensations as you shifted your profiles hither and yon. As a conversational opening, the Photomaton has it all over "my operation", or even "my trip abroad".

Excitement runs high as to whose face will next emerge. A large lady wearing a cameo the size of a Roman shield, argued about this with the mother of the three-year-old child, who munched bread and butter by the picture slot—in imminent danger of being stepped on.

"But I'm sure your little girl ain't next! I'm next."

"Well, maybe we can tell when the picture comes out," said the child's mother; and the Roman matron retreated, baffled.

Presently an edge of paper slides out of the side of the Photomaton—accent on the second syllable—and each one holds his breath. Someone leans forward and tenderly draws out the face. But it is not her face. The rightful owner seizes it and gasps, "I knew it! I laffed so hard, my tonsils show".

You peer over her shoulder and lo! it is Mrs. Fezziwig, one vast substantial smile. A respectable woman from Roxbury, wearing glasses beneath her "good" hat; but in the photograph every tooth shows in a ribald grin. Maybe her subconscious is like that.

Another sheet of faces slides out and a girl shrieks, "Look out, Agnes. It's still hot!"

The correct thing is to clutch your strip to your heart and bolt bashfully into the feather-pillow department, which is conveniently near, there to scrutinise the pictures all by yourself. Nearly everyone swaggers back to the Photomaton and displays them with a deprecatory air. "Yuh, the second one's pretty good, but ooh, I'm terrible on a side-view".

From twelve to one is the busiest time for the Photomaton. Then the attendants at the three booths become automatons, herding the prospects into line with one hand, guiding the immediate sitter with the other, while muttering directions to both. Into the booths slip wearied suburban shoppers, with packages dangling from every finger; girls "on their lunch-hour", young men who will not be parted from their caps, photo or no photo, and whose mouths are a glitter of gold. One by one they take their places under the spotlight, smile widely from left to right and straight, and at last join the waiters by the picture-slot. It is as exciting as a roller-coaster at a seashore amusement-park or an airplane ride.

Extravagant souls who wish to continue the carouse may have their favorite of the eight poses affixed to a Jiffo pocket-mirror for ten cents more. You have a choice of a gold-backed mirror, or one of plain white. It is well worth the money, just to see the friendly young Hercules arrange it for you, with an anvil-like affair which pounds together the glass, the back and your face, without smashing either. Please don't ask me how it's done. I never even got a passing mark in physics at school.

As to the pictures? I speak as one who has been frequently and expensively photographed, with mellow lights, and shaded lights, soft-focus cameras and all the rest of it. Invariably the proofs showed a face carved out of Plymouth Rocks, with the friendly geniality of a cigar-store Indian. For me, the little bird in the camera has always been a cuckoo. The Photomaton restored my tottering self-respect. It did for that inferiority complex.

Of course, no one could mistake those pictures for Betty Bronson, but I do look mirthful and carefree. Indeed, one of the lurking young men—with cap—examined them, over my shoulder, and smiled approvingly. And he said, "Not so fierce, not so fierce!"

Boston Evening Transcript.

Enlarging-Cameras

PERRY D. FRAZER

THERE are so many enlarging-cameras on the market that no one need make one; still—but let me tell a story. Friend Allen has an elaborate enlarging-camera for which he paid more than he did for the flivver he drives. Friend Brown has another one, not half so elaborate, which cost him perhaps ninety cents. I have one that I would not sell for that amount, though I doubt if it would bring in anything in a forced sale. Allen and I arrived one night while Brown was making lantern-slides, and after watching the work for awhile, Allen queried, "Why can't I do that with my outfit?"

"Well," Brown replied, "in the first place, the lens in your enlarger is very small, and you can't use one of the good lenses from one of your other cameras because it will not work in your automatic enlarger. In the second place, your enlarger will not take a 5 x 7 negative, as this one will. And in the third place, your bellows-draw is not sufficient for you to reduce from 5 x 7 to 1½ x 2, as you will sometimes want to do in making slides.

"Looking at it another way, you cannot get your easel far enough away from the lens to make real enlargements. Look at this"—and sliding the easel clear down to the floor and spreading a large sheet of paper over it, he racked the lens back and threw on the sheet of paper an image fully 20 x 30 inches in size—"look at that image, and from a 3¼ x 4¼ negative, at that!"

"Well, I'll be darned," was all Allen could say.

When one makes a thing that he could purchase in the market at one-half the cost—counting time and cash—there is usually a good reason. Aside from the saving in money, some men get as much pleasure from making articles as they do in the actual use of those articles, and they are made just as they want them. For amateurs of this class perhaps a description of Brown's enlarging-camera may be of interest.

In the first place, it should be explained that any old camera will serve; but as Brown happened to have a 5 x 7 view-camera with long bellows, he made the lamp-house and baseboard to fit that camera. In this case the total length of twenty-two inches was sufficient to support the opened camera and leave in the lamp-house abundant space to slide the mazda lamp up or down in its tube. It was found by experiment that the best position was with the flashed opal glass diffusing-screen about four inches from the filaments in the lamp. With lamps of lower power or different shape, slight changes in this spacing would probably be advisable.

There are two things, among others, favoring vertical enlarging-cameras. In this one, economy of space being important, it was advisable to place the lamp-house higher than one's head, therefore, out of the way; and the usual position of the easel was about the height of the average table; hence, comfortable to work with. The second consideration was the ease, accuracy, and rapidity in centering the image from the negative on the bromide paper-holder on the easel. It is seldom necessary to employ the vertical and cross movements of the camera itself. The position of the lamp is correct, the center of its filaments being always over center of opal glass, and in this position the life of the lamp is said to be longer than if it were fixed in a horizontal position.

When not in use, the easel is removed from its slide, camera closed, and then there is no working-space in the darkroom cluttered with enlarging-equipment. The front of the lamp-house has a large circular hole—cut with a compass saw—through which lamp and reflector may be removed at will. Over this hole there is a hinged door made light-tight with cleats all around, and provided with two small swivel buttons. If at any time it is desirable to take the lamp-house down, it is only necessary to remove two screws, turn two clamps, and lift from cross-pieces.

The lamp-house is very simple. The base-board forms the back, the front is another piece of pine, and the sides are narrow half-inch pieces of pine, sides and top being covered with a sheet of thin aluminum fastened light-tight with small tacks driven every inch. This polished aluminum reflects light toward the diffusing-screen; and the wood inside the box is coated with white enamel. This aluminum does not hold heat long.

The ridge-block is hollowed slightly to fit rounded top of lamp-house. In its center there is a hole taking a four-inch length of brass-tubing of a size fitting snugly over lamp-socket, so that lamp may be pushed up or down at will. The socket has no switch; but is provided with wire of convenient length, terminating in a snap-switch, or plug, as may be handy. Another hole through ridge-block takes a short piece of tubing with an elbow, the end pointing toward a blacked space on rear wall, showing no white

light, but providing much needed ventilation.

As the bottom of lamp-house is set about two inches above front and sides, this permits sliding the camera up into the box half the thickness of camera-box, making a snug fit; and strips of felt or velvet all around the inside make a light-tight union. The recess in side of lamp-house fits negative slide-holder.

After removing rear panel and groundglass, the camera is pushed into end of lamp-house, then rigidly secured with a spare tripod-screw. The narrow cleats keep the camera plumb. It should be said here that, in setting up the two uprights and attaching base-board, a level must be used, and a test made to be sure the negative-slide is trued up. This done, it only remains to see that the easel is true, both ways; but it is well to test easel now and then with a level. All angles being true, there will be no distortion in the enlargement from this source.

One method of Brown's is truly workmanlike, and it is worthy of adoption. He often works with a reflecting-camera that has a removable 3¼ x 3¼-inch lens-board and a seven-inch unsymmetrical F/4.5 anastigmat. On some trips he carries also an eight-inch symmetrical doublet, and on occasion employs the rear element only, getting a large image with small stops. This lens also has a 3¼ x 3¼-inch lens-board. Then he has a symmetrical F/4.5 anastigmat of five-inch focus in a small folding camera. By unscrewing flange from back of this lens, he removes it from the little camera, puts it in a 3¼ x 3¼ lens-board, attaches flange to back of board, and employs this lens in enlarging. His 5 x 7 view-camera was altered slightly to take these lens-boards. In this way he has available two or three lenses. We have often debated which is the better one to use in the enlarging-camera. Personally, I would prefer the five-inch lens for 3¼ x 4¼ negatives, as with it the distance the light travels from filament to bromide paper is less than with the other lenses mentioned; but in Brown's work he frequently enlarges from 5 x 7 negatives, and then he employs the seven-inch lens, at times the eight-inch. So far as exposure-time goes, the eight-inch lens, with its larger opening, admits sufficient light for fully timed exposures in six to ten seconds.

The strips referred to (M, Q, Fig. 4) are ⅞ x 2 inches, with clean-cut grooves, so that they are efficient. Lumber dealers supply them for making inside screens for windows, the screen sliding on tongued cleats attached to window-casing. Rubbing grooves with paraffin-wax ensures smooth working of the easel.

The easel may be held in position by a strip

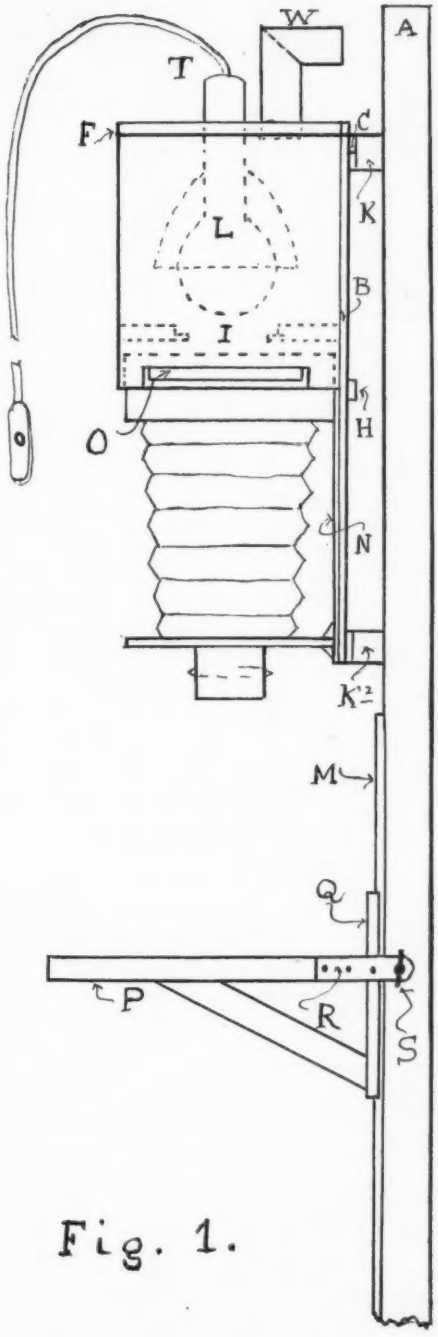


Fig. 1.

of spring-steel placed underneath and impinging on upright; but the 3/8-inch machine-bolt secures easel positively against slipping. The end of bolt is rounded, and to hold it friction-tight against side of upright, it is only necessary to turn it down slightly.

The negative slide-holder is made from a piece of thin stuff like cigar-box wood, with strips glued on three sides, these strips being a trifle thicker than negative-slide. The holder is of the same dimensions as a plateholder, and has an opening 5 x 7 inches. The negative-slide is made from thin wood in one piece. The opening is 3¼ x 4¼ inches at top and 3 x 4 inches at bottom, rabbeted, to take two sheets of glass and a film-negative, or a plate-negative alone. Small turn-buttons at ends prevent negative from buckling from the heat of the lamp. If the opening in the negative-slide is 5 x 7 inches, then any smaller negative may be used in it, in a kit; but a separate slide for each size negative is handier, and a slide does not take long to make.

If condensing-lenses are to be used instead of an opal glass-screen, provision must be made so that their holder may be taken out of lamp-house for cleaning. The bottom of lamp-house may be hinged for the purpose, and holder placed on bottom of lamp-house. The relative merits of opal glass and condensers have been discussed at length in the photographic magazines. One able writer, advising a correspondent, said, in effect, use condensers if you have them, otherwise opal glass-screens will answer very well. I am open to conviction. I have condensers and various screens, and each one has merit. It seems certain that condensers pass more light; that one sheet of groundglass will pass more light than one opal sheet; but it does not give proper diffusion; that two sheets of groundglass are too dense; and, curiously enough, that a flashed opal plate-glass screen gives better prints than an opal screen of window-glass thickness.

As to power of lights, take your choice. With Brown's outfit the 200-watt mazda C lamp gives good results. Allen uses a 150-watt lamp in his automatic enlarging-camera, and he makes nice bromides. My enlarging-camera is somewhat old-fashioned and not very roomy; but I have employed, at different times, with fair results, two 60-watt, one 100-watt, and up to two 100-watt lamps. Allen says if a 200-watt lamp works so fast with some negatives that he can scarcely snap the light on and off, why more power? I hae me doots; hence the comment above, as to an open mind.

Mr. Beardsley recently urged beginners to take up enlarging, and explained how simple and easy the work is, once you have taken the first steps. There is no great mystery about it, and the work is very fascinating.

The enlarger I have described can be made by anyone who can make a simple box from wood-scraps. An outfit for a 5 x 7 camera is mentioned because that is a handy size, old 5 x 7 view-cameras are a drug on the market, and a very good one may be had almost for a song. But if you have a camera of another size, by all means use it. In that case open the camera, measure its base, and make the base-board about twice that length, and an inch wider than the camera-box. The other dimensions are to be so arranged that the camera will fit snugly in bottom of lamp-house. For a lens, use the one you have in your camera. To place negative correctly in holder, stand in front of the enlarger, insert negative with bottom facing away from you, emulsion-side down. Remember the waiter's order for eggs fried "sunny side up," for that is the way the negative goes. Use lens wide open.

Explanation of Sketches. A, two 2 x 4-inch pine-timbers, extending from ceiling to floor of darkroom; B, 22 x 10 x 7/8-inch pine base-board, rounded at top; C, 10 x 1½ x 7/8-inch board nailed to back of base-board, secured to crosspiece K by L-shaped swivel-clamps D, and at bottom by large flush screws E; F, ridge-block supporting lamp-tube and ventilator; G, slot in base-board for tripod-screw H; I, 7½ x 7½-inch opening in bottom of lamp-house, provided with sheet of flashed opal glass; K, K-2, 3 x 3-inch cross-pieces to support base-board and center lens on easel; L, dotted lines indicate position of 200-watt mazda lamp and reflector; M, grooved strips on uprights; N, narrow cleats on edges of base-board, to keep camera plumb; O, negative-slide and holder; P, sliding easel; Q, short grooved strips supporting easel, and sliding in grooves of strips M; R, piece of steel fastened with screws to right-hand edge of easel, and threaded to take 3/8-inch clamping-screw S; lamp-socket slides in tube T, free end of wire provided with snap switch or plug; V, thin sheet aluminum covering lamp-house; W, ventilator-tube with elbow; X, hinged door in front of lamp-house; Z, round hole in front of lamp-house.

[This article was prepared and published for the especial benefit of those of our readers who find pleasure in making their own photographic equipment. Dealers and manufacturers are doing wonders in the way of supplying equipment; but there are always those—call them "cranks", if you will—who really enjoy handling tools and making something a bit different or better adapted to their personal photographic needs.—EDITOR.]

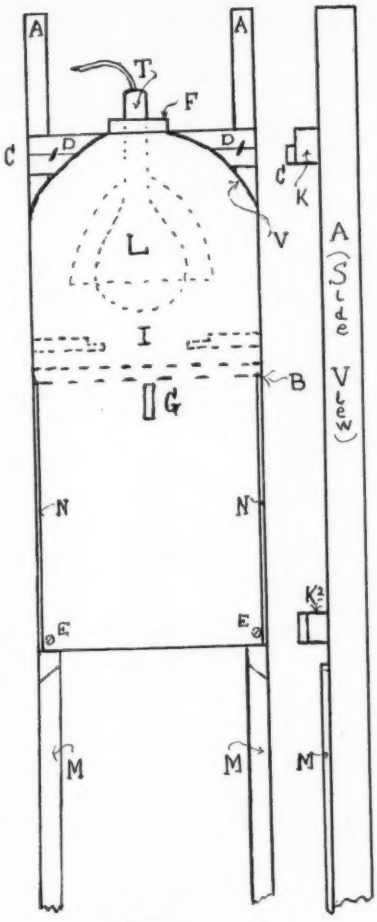


Fig. 2.

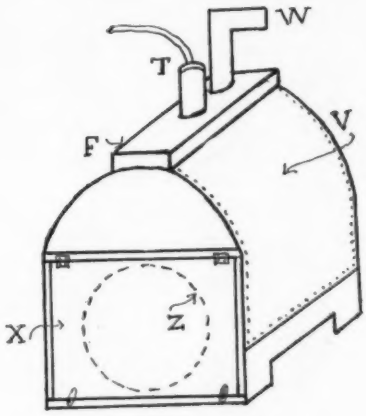


Fig. 3.

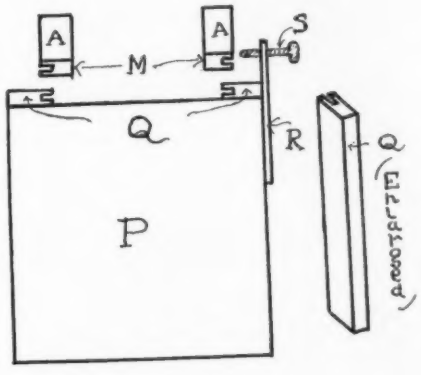
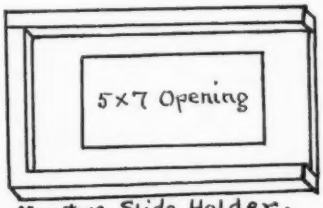
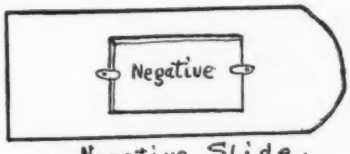


Fig. 4.



Negative Slide Holder.



Negative Slide.

Fig. 5.—(Enlarged View)

U. S. FRIGATE CONSTITUTION—"OLD IRONSIDES" FROM PAINTING BY GORDON GRANT

Seeing the British solid shot bounding off the solid oak sides of the "Constitution" during the engagement with the Guerriere the American sailors called her "Old Ironsides," and as such she is known throughout the world.

Photography Helping to Save "Old Ironsides"

A. H. BEARDSLEY

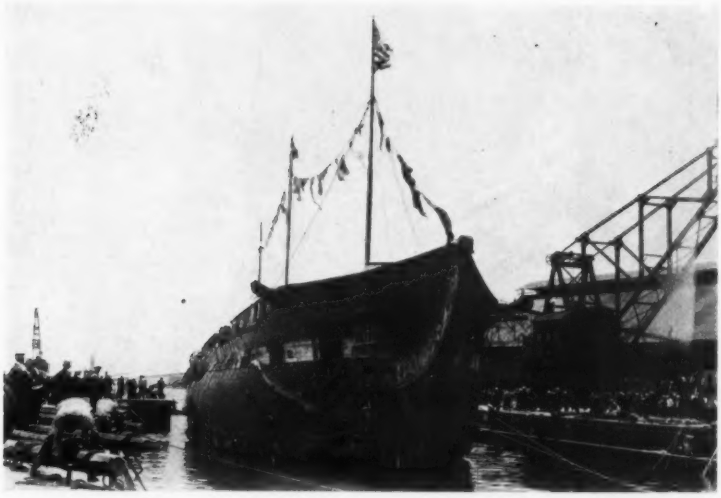
BY means of photographs which show the true condition of the hull, superstructure, and interior of the famous Frigate "Constitution" the public is being informed in a convincing manner of the immediate necessity to overhaul and reconstruct America's historic vessel. The restoration of the ship was authorised by Act of Congress, March 3, 1925, which also authorised the Secretary of the Navy to receive donations from the people of the country for this purpose. Through the courtesy and co-operation of Rear Admiral Philip Andrews, U. S. Navy, Navy Yard, Boston, Mass., I am passing on to the readers of PHOTO-ERA MAGAZINE a few facts which I trust will be of interest and will result in each one doing his bit as an American citizen to preserve "Old Ironsides" for future generations as a matter of respect to the gallant officers and men who sailed her, and as a fitting recognition of the splendid service which was rendered by this ship at a very critical time in American history.

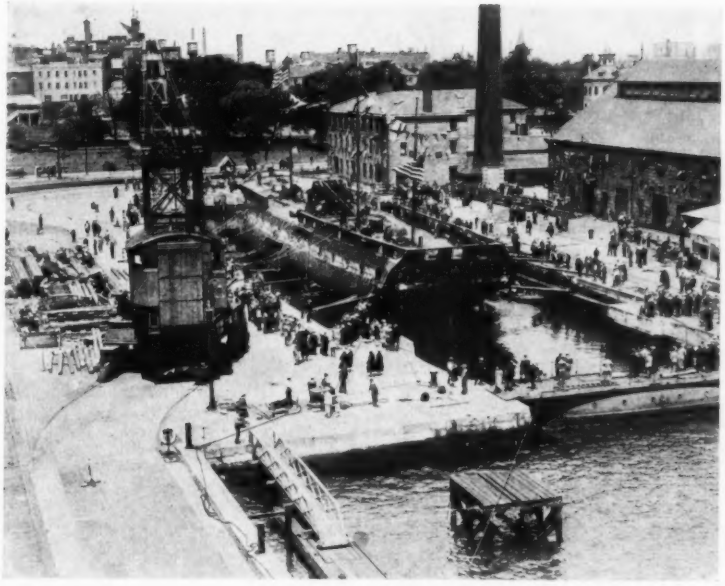
I am taking the liberty to quote from the material which Rear Admiral Andrews placed at my disposal.

FROM THE SECRETARY OF THE NAVY

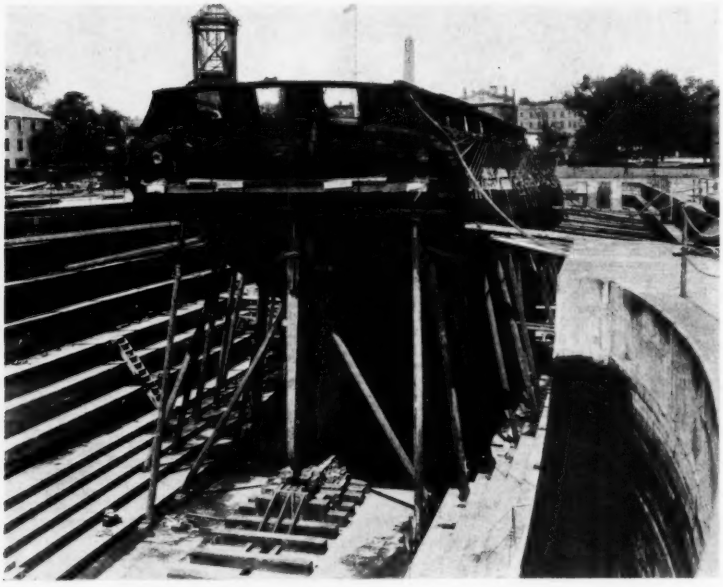
"May the spirit of 'Old Ironsides' go sailing on! There is no relic in our country more symbolic of the early heroism of the Nation than the U. S. S. 'Constitution'. This fine old ship, whose every timber embodies the ideals of the Republic, is a living reminder of our glorious past, and an inspiration of patriotic citizenship to our children and children's children.

"She bears the scars of forty-two battles, and a score of vanquished Captains brought their flags and swords for surrender to her victorious Captain.





"OLD IRONSIDES" FLOATING INTO DRY DOCK
"OLD IRONSIDES" DURING DOCKING-CEREMONY



"OLD IRONSIDES" UNDER RECONSTRUCTION AT CHARLESTOWN NAVY YARD

"Old Ironsides" has never known defeat. The ravaging hand of Time now rests heavily upon this gallant old defender of our young Nation. She sends forth to the land an eloquent call to all America."

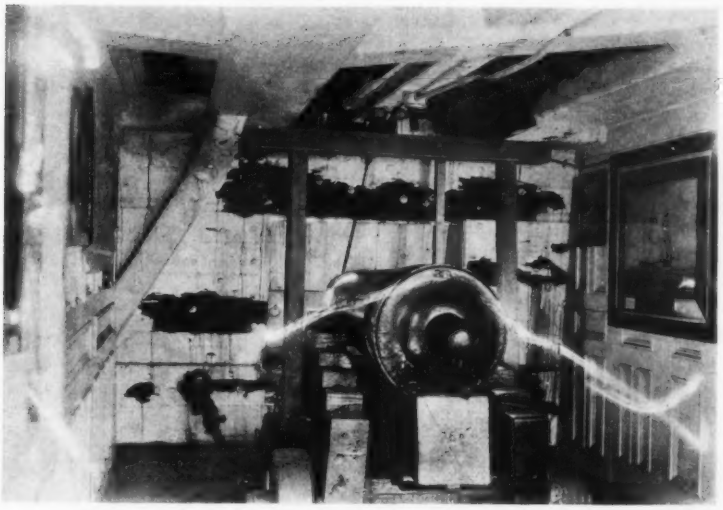
CURTIS D. WILBUR,
Secretary of the Navy.

FROM REAR ADMIRAL ANDREWS

"The restoration of the Frigate 'Constitution' to her original condition was authorised by Act of Congress, March 3, 1925, which also authorised the Secretary of the Navy to receive donations from the people of the country for this purpose. Congress would have appropriated the funds necessary for this work if it had been requested to do so, but the Secretary of the Navy believed it would be a beautiful exhibit of patriotism if the people themselves and particularly the children of the country gave small amounts to make up the fund needed. Since that time educational campaigns have been carried in many of the schools of the country where patriotic exercises about the history of 'Old Ironsides' and the early history of our country have been held. The thought back of this movement being to encourage the children to study the history of this time and to foster a more intensive patriotism and love of country. Lessons so learned remain with children forever. The campaign has, and is, creating a wholesome interest in good government and the principles upon which our country is founded. So the whole movement among the children is considered by the committee as a deposit in the bank of patriotism which should and will yield big dividends in the future. That is why Congress has not been asked to appropriate the money to rebuild the 'Constitution'.

"However, the small donations of nickels and dimes obtained in this manner has not reached the proportions required, although the amount so far collected, $263,000, has clearly proven that the educational plan has had its effect.

"And so in order to complete the fund necessary for the early commencement of the work of restoration, deemed so advisable in view of the condition of the Frigate it has been determined to place on sale a limited number of the beautiful reproductions of Gordon Grant's new painting, which he was authorised to make for this purpose. The original will hang permanently in the White House. It is being reproduced by a new process which presents an exact likeness of the original in Ten Colors.



A five-minute exposure by ordinary 50 C.P. electric lamps. The streak across the base of the gun was made by moving the light in order to get details on both sides of the gun. The dark areas in the outboard bulkhead show the extent of decay.

The prints are 17 x 21 inches. The work is being done at cost by the reproducers as a contribution to the cause so that the price of 25 cents is but an insignificant proportion of their actual value. Pictures of this character are usually retailed at from three to six dollars. The picture has been copyrighted and each print will be numbered

"Every American knows of Independence Hall in Philadelphia, and would not think of letting it fall into decay; every American knows of Mount Vernon and if necessary would dig deep into his pocket to preserve this home of George Washington; most of us know of and approve of the effort to save and keep the home of President Jefferson at Monticello, Virginia. However, a comparatively small percentage of Americans know that the Frigate 'Constitution' is still afloat, and it perhaps has never occurred to those that do that this ship is as authentic and valuable historically as any of the buildings of early days about which we as a nation are so jealous. She is now decaying here at the Charlestown Navy Yard, Boston.

"The grand old Frigate should be a national floating monument, and we propose to make her this. She belongs to every citizen of the United States. Her record is part of this country's history. She was planned, constructed, and launched during the administration of the first president of the United States and despite the ravages of time she still defiantly flies her stainless flag. But now she is sending an S O S to the nation she defended and established.

"It is confidently hoped by the sale of these prints to raise the balance of the fund required so that the work may be started immediately. The co-operation of every fraternal, patriotic, commercial and civic organization as well as individuals is earnestly solicited in the sale of these reproductions."

PHILIP ANDREWS,
Rear Admiral, U. S. Navy.

The U. S. Frigate "Constitution" is one of the first three naval vessels built by the United States. Designed by Joshua Humphries of Philadelphia, her keel was laid at Hartt's shipyard, Boston, in 1794. Her flags and signals were made by Betsey Ross in Philadelphia. The copper-bolts and sheathing were made in Paul Revere's shop.

First commissioned in 1798, she then took part in suppressing the French privateers in the West Indies. In 1804, "Old Ironsides", commanded by Commodore Edward Preble, took part in the bombardment of the forts at Tripoli, which resulted in peace with the Corsair States, and stopped the tribute we had been paying the Barbary Pirates.

In the summer of 1812, when the morale of the whole country was at its lowest ebb, Captain Hull sailed her into Boston Harbor with news of her wonderful victory over the "Guerriere". The

news swept from one end of the country to the other, and gave the people the stimulus they needed. The spell of English superiority at sea was broken. Without this victory it is difficult to tell what the future of the new nation would have been.

During the War of 1812, "Old Ironsides" fought and conquered the "Guerriere", "Java", "Pictou", "Cyane", "Levant", and fifteen other ships, exploding the boast made by the British poet of that period that,

"The winds and seas are Britain's
wide domain
And not a sail without permission
spreads."

"Old Ironsides" is now in dry dock at the Boston Navy Yard undergoing overhaul and reconstruction. She belongs to every citizen of the United States. Her record is part of our country's history. Congress has authorised her restoration by funds raised by popular subscription, giving everyone an opportunity to be of direct service to the grand old Frigate. Part of the necessary fund has been raised by the donations of the children. It is being completed by the sale of beautiful reproductions of Gordon Grant's original oil-painting at twenty-five cents each. The print is 18¾" by 22¾" and in ten colors.

Rear Admiral Philip Andrews, U. S. Navy, Chairman, National Committee, Navy Yard, Boston, Mass., will be happy to receive and to acknowledge all subscriptions for these pictures.

Photography in School and College

ARTHUR L. MARBLE

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Chapter V—Types of the Camera

OF all studies, none is more fascinating than that of the camera. There are literally thousands of different kinds on the American and foreign markets; cameras to fit every individual whim and necessity. To enumerate and to discuss even the most popular equipments would easily fill a volume; furthermore, it is beyond our present purpose. What we shall aim to do in the following article is to speak of leading types of amateur and professional cameras which either have attained wide popularity in schools and colleges or have the potentialities of such attainment. We shall find that every type, with all its merits and shortcomings, is best adapted to a certain kind of work. When a prospective purchaser of a camera has a knowledge of the principal types, and the purpose for which he wishes an outfit, he will have no difficulty to make a proper selection. The attendant illustrations are representative examples of cameras that are quite well known in America and abroad.

The Box Camera. This type needs no introduction, for doubtlessly it is the best known picture-making instrument in the world. Without question, a greater number of amateurs have begun their careers with this type than with any other. Virtually all box cameras—even the cheapest, which sell for about one dollar—are carefully made; and the beginner will have no difficulty to make clear pictures at the first attempt, provided that directions are followed carefully. All things in the box camera seemingly culminate in two virtues: simplicity and ease of operation. There are few moving parts to get

Courtesy of Eastman Kodak Co.

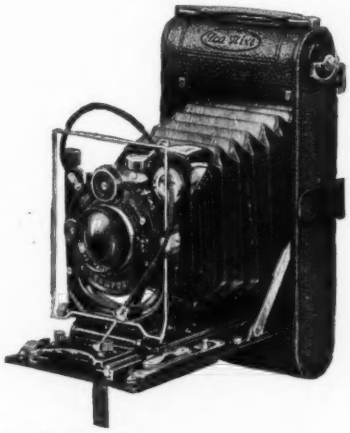
BOX CAMERA

out of order. One can hardly imagine a device more foolproof than the rotary shutter with which the box type is usually equipped. The lens, of course, is the inexpensive single meniscus or meniscus achromatic. As it is generally fixed focus, the adjustments on the camera are few and simple.

The serious camera-student, although recognising that the box camera is much more than a toy and is one of the best instruments for the beginning worker, realises, too, that it has very

marked limitations. It is quite cumbersome to carry; its lens is slow, working only under the best light-conditions.

The Folding Camera. This is sold in such a great variety of sizes, styles, and prices that they defy classification. The least expensive



Courtesy of Carl Zeiss, Inc.

FOLDING CAMERA

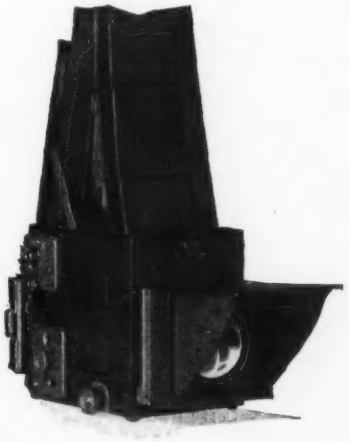
folding cameras are fixed focus, and most of the better grades are focusing-models; and many of these use large anastigmat lenses, having shutters as fast as 1/300 of a second. Certain Eastman types are Autographic; that is, by lifting a small door in the back of the camera, titles and other data may be conveniently written on the film, to later appear in the negative. All film is not Autographic; a special kind is necessary. Ansco makes several folding cameras that automatically wind the film by means of a spring motor. This provides a way to make pictures one after another in quick succession. Certain types of instrument are adapted to plates and film-packs, as well as films. No instrument approaches the popularity of the folding camera for travel, due to its light weight, portability and efficiency. However, like most amateur cameras, it is not made for specialised photography, and is best suited to general work.

The Reflex Camera. In appearance, the reflex camera resembles a combination of a box and folding camera, with the addition of a focusing-hood. A reflecting mirror in the body of the camera projects a picture-size, uninverted image on to the groundglass. A scene may thus be viewed up to the moment of exposure. The lens is commonly a large anastigmat, which is well adapted to a focal-plane shutter which make exposures as brief as 1/1000 of a second.

A good-sized reflex camera is very impressive; in fact, crowds and individuals have been known to pose gladly for one of these imposing affairs when they never would have stopped for a smaller "more amateurish" machine. Such is human nature!

There are types that are adaptable for plates, as well as films. Although the Graflex type is best known, there are smaller reflex cameras of foreign make, such as the Ernemann, that combine many of the advantages of both the folding and the reflex types.

The reflex camera equipped with a high-speed lens is, of course, the favorite for press-photography; and, in fact, all work in which it is necessary to record movement. Children and animal pets may be photographed with spontaneity and without the necessity of laborious posing and time exposures. The greatest handicap that users of this type of instrument have to contend with is the difficulty with which rapid action is followed on the groundglass. This disadvantage may be overcome, however,

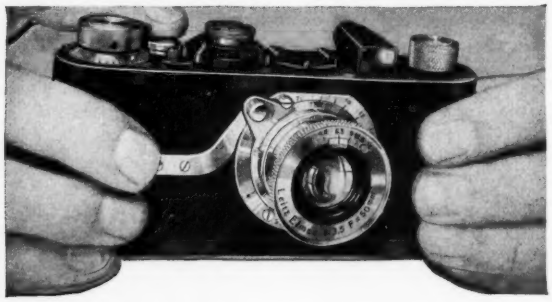


Courtesy of Eastman Kodak Co.

REFLEX CAMERA

by the use of a direct-view finder. The sturdiness of frame combined with careful lens-correction and speed makes the reflex camera highly favored for telephotography; the same admirable features make it well adapted to scientific work which does not demand a special camera.

But even the reflex has certain disadvantages that causes one to recall that there is no perfect "all-purpose" equipment. It is very expensive;



Courtesy of E. Leitz, Inc.

KINEMA FILM CAMERA

and because of its complexity, greater skill and knowledge of photography is necessary to operate it successfully. However, the advocate of this type of instrument may well argue that whatever disadvantages it has are compensated for by the fact that it accomplishes things that many other cameras do badly or not at all.

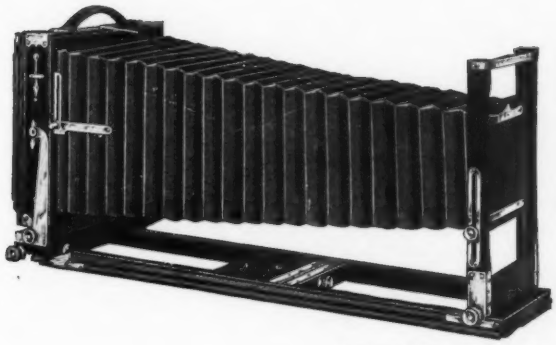
Kinema-film Camera. There has quite recently appeared on the market a type that can hardly be classified under the foregoing divisions, though instruments in the group have features that resemble all of them. This camera uses film of standard motion-picture size and is represented in American manufacture by the Ansco Memo and abroad by the Leitz Leica. These are not motion-picture cameras, and should not be confused with them. That they make still pictures on the same size film as does the standard Kinema machine, is practically the only point this equipment has in common with the motion-picture camera. The Memo is noted for its roll of fifty separate exposures at one loading; the Leica for a focal-plane shutter. We are told that a simple attachment is available for use with the Leica, which permits its use in photomicrography. Slides from the motion-picture size film are cheaply and easily made, and projectors are now on the market especially made for this size.

The popularity of the kinema-film still camera is sufficient testimony of its merits. Students, writers, and travelers find in the small machine and the inexpensive films an excellent notebook auxiliary or substitute useful in recording data of people and places. The simplicity, the ease of operation of this type, the fact that it can literally be carried anywhere, combined with the fact that the operator is comparatively inconspicuous while operating it, makes the little instrument satisfy a genuine need. I am familiar with students who, making a great number of negatives of this size, depend upon having only the best pictures printed as enlargements.

It takes but a short while for the user of one of these instruments to discover that, unless he is careful and discriminating in his work, that on account of the cheapness of the films he is apt to shoot aimlessly, without care or thought, resulting in few pictures of real worth. If one finds

Courtesy of Eastman Kodak Co.

STUDIO CAMERA



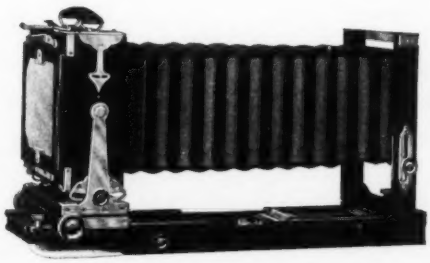
Courtesy of Conley Camera Co.

VIEW CAMERA

that the reasonable price of the motion-picture size film blinds him to the value of each individual frame, he had better leave this camera to the hands of more discriminating workers. The small picture can either be regarded as an advantage or a disadvantage, depending, of course, upon the point of view. Direct prints of this size are too small to offer for publication, and enlargements, although they are easily made, are not always an economy.

As there are institutions of learning which feel that they are justified in doing their own newspaper and annual photography, as well as their own publication press-work, they are interested in cameras that are more specialised than most amateur instruments. For that reason, the present discussion would hardly be complete without some reference to the more popular professional outfits.

The Studio Camera. This is also known as the portrait-camera, as it is almost exclusively employed for portrait and group-work. In this type, lightness of weight and portability have been sacrificed for strength, stability and completeness of detail. The camera proper consists of two main sections, connected by a bellows. The front board is fitted with a lens and shutter, and the rear board is built to receive a groundglass and a plate or film holder. This bulky apparatus is mounted on a heavy frame tripod terminating in casters to facilitate moving the instrument about the studio, for which environment the camera is meant entirely. Adapters may be used that permit the making of a number of separate exposures on one plate. Studio cameras are often sold without lenses or shutters, as most workers have individual preferences regarding such equipment.



Courtesy Ansco Photoproducts, Inc.

VIEW CAMERA

The View Camera. Although not so bulky as the studio camera, it is too heavy for hand use, and is always used with a tripod support. Like most professional cameras, it employs cut-films or plates rather than roll-film. It is designed particularly for architectural and landscape-photography; and so is adequately provided with the required auxiliaries, such as a rising front, swing-back, and horizontal movements. The focusing-arrangement differs from that of amateur cameras in that the back, instead of the front, is adjusted to create a sharp image.

Cameras differ not only in general types and styles, but also in individual equipment. It is very common to find two cameras of the same make and type differing slightly in equipment; so that although one is admirably suited to the user's purpose, the other may be totally unfitted. For instance, a reflex camera with which it is intended to photograph birds in flight should be supplied with a direct-view finder; and the same kind of camera without the direct-view finder would be of little value for such work.

It is, of course, quite impossible to change

certain parts on some kinds of cameras; yet on many it is. But, fortunately, it is very often possible to select an outfit that is equipped to suit the personal requirements and with which special work may be done.

View-finders. Such a seemingly insignificant detail as the view-finder is fraught with importance. There are many different types; but all of them have a common purpose: to give the photographer such an idea of the scene included in the field of view that he may properly compose his picture. These are two types, the direct-view groundglass finder and the reflecting-mirror finder that also tells when the subject is in focus as well as showing what is included.

The usual groundglass finder—found on box as well as on many folding cameras—is a miniature camera which gives a greatly reduced image that is reversed. This type is rather difficult

FIGURE 1 ARTHUR H. MARBLE

to use in poor light, due to the lack of brilliance in the little instrument.

Working on the same general principle is the brilliant finder which differs chiefly in that it is composed of a miniature meniscus lens in place of the cloudy groundglass. (A, Fig. 1.) The brilliant finder has the advantage that it yields on image of greater clarity and luminosity than do any of the groundglass finders.

The direct-view groundglass finder is a specially prepared frosted glass that is inserted in the back of the camera for the purpose of viewing a picture-size inverted image of the subject to be photographed. (B, Fig. 1.)

The view is more easily seen where the light is subdued; hence, the operator usually does his composing and focusing under a dark cloth. After the photographer is satisfied as to the accuracy of the focus and the composition, the film receptacle is either substituted for, or placed in front of, the finder. The chief objection to this method is that it is somewhat slow and cumbersome. However, it is used chiefly in studio and view-cameras in which speed is not a fundamental requirement.

The finder commonly used in the reflex camera, known as the reflecting image finder, is somewhat different in operation. In this, the image coming through the camera lens falls upon a mirror lying at a 45° angle. Here it is reflected upward on to a screen—consisting of a large groundglass—where the image is visible to the operator.

None of the above-described view-finders is adapted to following the fastest action. The direct-view finder is constructed especially for that purpose and to enable the operator to get a clear, direct view of the subject he is photo-

FIGURE 2 ARTHUR H. MARBLE

graphing. The direct-view finder consists of a frame composed of two principal segments set a certain distance apart, which when used together operates on the same principle as the sights on a gun. (A, Fig. 2.) The eye, held the proper distance from the finder, finds included in the large segment the scene that would be included on the negative. The direct-view finder may be purchased separately and mounted on most cameras.

In the range finder we have a little instrument that enables the user of a hand camera to determine the correct focus with much of the dispatch and accuracy of a reflex. (B, Fig. 2.) Briefly, it is a small rectangular tube containing a system of mirrors and prisms and operated either mounted on the camera or independently held up to the eye. An observer, looking into the eye-piece views a double image of the scene for which he is to obtain the correct distance. As the focusing-screw or indicator is moved, the separate parts of the image come together until they coincide. The indicator is then pointing to the proper distance-reading, and the photographer sets the camera-focus without guesswork or hesitation.

All focusing-cameras are, of course, provided with means for changing the distance from the lens to the plate in the form of a sliding scale, or rack-and-pinion movement, or by turning the lens-mounting in its barrel.

The better grades of hand cameras and practically all press and commercial machines are equipped with a rising-front or swing back, if not both. A rising-front is a device that permits raising the bellows on the front board so as to include a high viewpoint without the necessity of tilting the camera upward with the consequent distortion. (A, Fig. 3.)

Practically all cameras are built to make either horizontal or vertical pictures. Box cameras are frequently provided with two separate finders for that purpose. The reflecting groundglass and brilliant view-finders may be adjusted for

FIGURE 3 ARTHUR H. MARBLE

either horizontal or vertical views. On reflex, studio and view-cameras the problem is solved by means of a revolving or reversible back. (B, Fig. 3.) This permits the entire rear film compartment to be turned without removing or fogging the film.

A falling-front is a variation of the rising-front, by which the bellows on the base-board is dropped below the horizontal to permit the making of views below the camera. The swing-back (C, Fig. 3) serves the same purpose as the rising-front. In this, the back of the camera is mounted on a hinge or pivot that allows the part to be tilted at an angle. This device is found on certain types of view-cameras, meant chiefly for architectural and landscape-work.

Perhaps the greatest single problem that confronts most people in making a picture is the question of what exposure to give. A high percentage of amateur failures are due to faulty exposure; and even the experienced worker is sometimes deceived by his own judgment. To reduce the chances for error due to human fallibility, a gauge known as the light, or exposure, meter has been devised. There are many forms; some depend upon the judgment of the operator as to the strength of light; others measure the

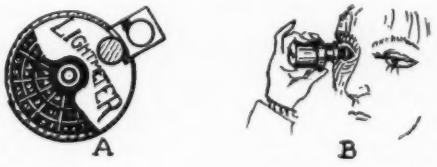


FIGURE 4 ARTHUR H. MARBLE

light; but nearly all of them are provided with tables or scales having the various factors of light, subject, stop and exposure: so that a multitude of questions that confront the photographer are readily answered. (A, Fig. 4.) Most of the many kinds of exposure-meters on the market are thoroughly reliable; and an individual should have little trouble choosing one that pleases.

Photographers have long felt the need for a direct-view finder that may be used independently of the camera. Consequently, an English firm has built a view-meter (B, Fig. 4) consisting of a small tube that, held up to the eye, enables the user to see a rectangular view similar to that visible through a camera-finder. The view-meter is an efficient time-saver, as it precludes the necessity of setting up the camera in order to test the artistic possibilities of a scene.

The tripod is a necessity for serious pictorial work and especially important in making time-exposures. There are useful allies of the tripod on the market which permit clamping the camera to a tree or other firm support. The thing to remember is that unless the camera is equipped with tripod-sockets, neither the tripod or its substitutes can be used successfully.

Choice of a Camera. No hard-and-fast principles can be laid down relative to the choice of a camera. After all is said, it is, like selecting a house or an automobile, a personal matter. However, there are a few things it is well to keep in mind.

The first cost of a camera is not so great as the upkeep. With this thought in mind a prospective purchaser should go ahead and buy the camera that is best suited to his purpose and his pocketbook. As to the best make on the market, it is impossible to say; of the leading makes, it can be said that they are all good. Any widely advertised instrument manufactured or imported by a reputable concern, is sure to give reliable service and satisfaction.

In deciding what size to buy, it is well to ask these questions:

(1) Do I wish to make pictures primarily as a personal record? If so, a small camera, even the kinema-film size, will not be too small.

(2) Do I plan to do pictorial or press-photography? If so, a fairly large picture-size will serve the purpose best, as the negative will require no enlarging to make prints suitable for exhibition or for reproduction in publications.

It is well, also to ask:

(1) Are supplies for the camera I plan to get readily obtainable from dealers at home and abroad?

(2) Is the cost of supplies and equipment within my reach? In this connection, it should be remembered that the larger the size, the greater the price for films, developing and printing.

Although the post-card size is very popular,

yet, for general photographic work in schools and colleges the 3¼ x 4¼ will be found to satisfy most requirements. There are several reasons that this size—known as the quarter plate—is an excellent compromise of the many sizes, large and small, that confront the prospective buyer.

(1) The print is large enough to be conveniently viewed; it is quite marketable, and is of the same dimensions as the standard lantern-slide used in all types of projectors.

(2) Supplies for the quarter-plate size are moderate in price and may be procured from dealers all over the world.

The question of plates or films need no longer worry the general worker in schools and colleges. Films are more convenient to use than plates and—except for certain kinds of scientific work—will do all that plates will do, including panchromatic work.

(*To be continued*)

The High School Camera Club

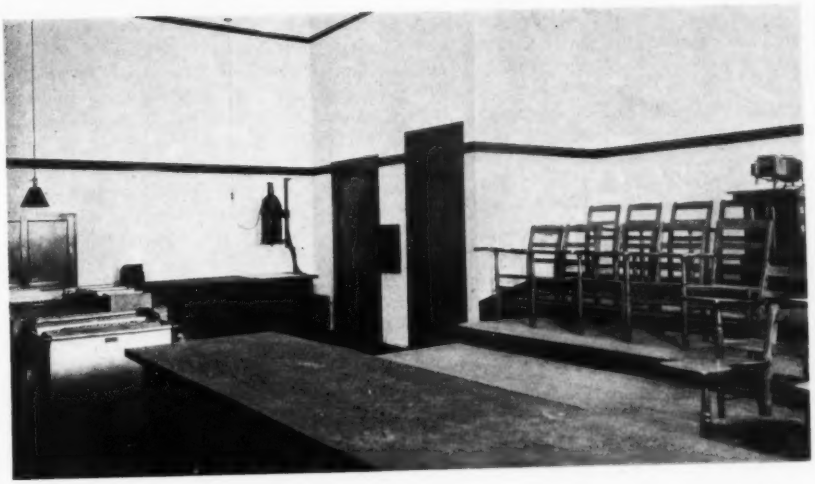
GILMAN LANE

THE major purpose of a High School Camera Club is, of course, to promote an interest in better photography; to lift its members from the snapshooter-class to a point where they can make, develop, and print their own pictures in a comprehensive way. A secondary motive that may or may not be stressed, is to do a great amount of photographic work for the school which otherwise might not be done at all, or cost the school a large sum of money. This part of the work will help in the matter of appropriations for equipment.

It will be no task to "sell" the club to the pupils, if they understand that the purpose of the club is to enable them to make better pictures. But to sell the club to the school-executives is another matter, and it is in doing this that one may need to prove that the club will be an asset to them.

Among the large army of snapshooters in any high school group will be found a few, a small percentage, who are interested in going beyond that stage. These few comprise the raw material for the camera club. They are dissatisfied with slanting sky-lines, prints that are too dark or too light. To them photography means the outlet of an artistic impulse, a means of creating a thing of beauty in place of a record-picture of doubtful interest to anyone but the maker. Some of them will want to become photographically expert so that they may use their knowledge in other fields. Botany and zoölogy are fertile fields. It is better to photograph the wild flower and leave it for others to enjoy; and the song-bird on its nest than just to look at it through a pair of field-glasses. Students who expect to follow any of the natural sciences as a life-work will find photography a timely aid in study and in keeping specimens, to say nothing of micro-photographs. The increasing use of motion-pictures by amateurs opens another field. But no matter in what direction the student's interest lies, with a serious study of photography will come an appreciation of good pictures, technically and pictorially, that will serve to brighten many an hour. Once convinced that such a group of students exists in your school, the next step is to convince the executives of the school that a club should be organised.

The advantages which the club offers to students should be reason enough for its existence, and also for the purchasing of necessary equipment. But such a club means the occasional, perhaps exclusive, use of a room; and, in addition, calls for the time of a faculty adviser. In view of the fact that the faculty is already overworked, and that room is at a premium, it may be necessary to prove that eventually the club will be worth its cost to the school. Although it would be unwise to say that the club could do all of the things mentioned below, the first year of its organisation, it is no more than fair to say that the club will, with help and encouragement, become invaluable in some of the ways mentioned. Every high school publishes an annual. The club can make views of the grounds and buildings, interiors, athletic teams, clubs, classes at work, and various other pictures for the annual. In fact, a well-organised club will eventually be able to make all of the pictures for the annual except the individual portraits, and at a great saving to the school. Then, there is the weekly newspaper published in many schools—a similar field is open there—most of the pictures having news-interest: the line-up for the big game, the touchdown that won the game, the student who won the debate. Record the amateur theatricals—individual pic-



DARKROOM AND CLUBROOM
OAK PARK HIGH SCHOOL
GILMAN LANE

tures of the cast in costume, scenes from the play. Aside from their news-value, such pictures are of great value as records of the school's activities, a matter of history.

Here is a suggestion valuable for large high schools: identification-pictures of all students. It is becoming increasingly more difficult for school-executives to remember faces or to connect names and faces. In our own high school of over twenty-six hundred students, the camera club makes a small picture of each first and third year student every year, at a cost of a few cents per picture. Each picture is pasted on the office record-card, and the supervisors find them a great help, not only when the student is in school, but after he leaves.

There are several other fields that can be mentioned as possibilities. Lantern-slides are being used more and more in education, and can be made by the club at cost. There is no reason that amateur movies cannot be used in the same way. Also, pictures can be made of school-exhibits, of individual projects that are worthy of record. Work in the art-room can be permanently recorded for the school before the student takes it home. Such records are invaluable to show the progress from year to year. Each department might well keep a book of pictures from year to year.

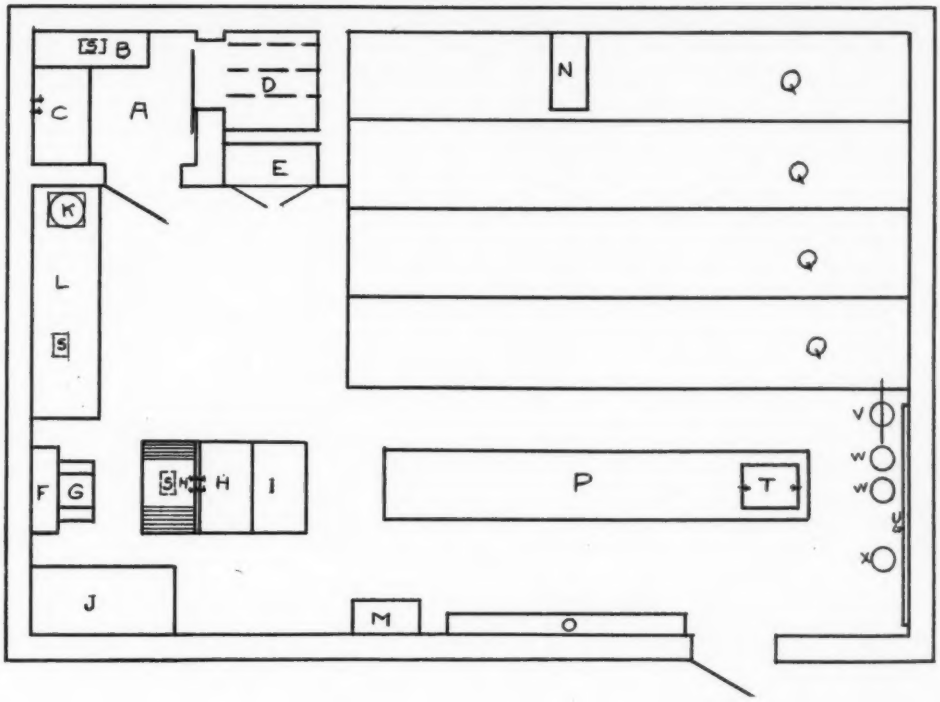
The question of financing such a club has already entered the mind of the reader. If the club is only for the benefit of the members, a fee of perhaps fifty cents a semester will be sufficient for running expenses, provided that the members understand they are not to do personal work at the club's expense. The school should be interested enough to buy what little equipment is needed to begin with. But if the larger program of service to the school is to be attempted, it is hoped the school will make quite a substantial appropriation for the fitting up of a suitable room, and buying photographic equipment. These items will be discussed later. After the initial expense, the sale of pictures to students should furnish adequate revenue. Pictures may be sold quite reasonably and still show some profit to the club. Everyone is interested in pictures of the teams and of the players individually. The same is true of club-pictures, and especially true of amateur dramatic pictures. One of our largest sources of income is the sale of close-ups and scenes from the play. Within a day or two after the play, a bulletin-board is placed in the hall, with pictures numbered and priced, also envelopes for orders. At a date announced in the school-paper, students call at the club-room, paying for the pictures as they get them.

A print of each club-picture is sent to the club's adviser, who fills in an order for the number wanted and collects from the members. The materials used for identification pictures should be paid for by the school; and this also applies to lantern-slide or copy work or anything that cannot be sold to students and hence be self-supporting.

In considering equipment, one must first consider just how extensive a program the club will some day hope to undertake. If the work is to be limited to helping the members in making better pictures for their own use or amusement, very little will be needed except the enthusiastic workers and their cameras. Work may be done in a laboratory darkroom, with equipment such as the student would work with at home. Briefly, this would consist of at least three trays, a safe light, a printing-frame and a sink with running water. The next step would be the substitution of a printing-box for the frame, and the addition of a small vertical enlarger. This is the minimum equipment, and no matter how elaborate the club-equipment may be, the beginner should be taught to use simple equipment, comparable to what he eventually will be using outside of school. The city boy may need to be taught how to use the kitchen or bathroom as a darkroom, as the apartment-building may make that necessary.

If the club expects to carry out the extensive program suggested above, then a much more elaborate equipment should be planned for. A room to be used by the club and no one else is desirable, and one that can easily be made dark—with few, perhaps no windows. At the same time, it must be dry and well ventilated—this is especially important. There should be two sinks, with hot and cold water, and plenty of electric outlets. There should be plenty of room for the storage of supplies of all kinds, and also large work-tables. The room itself should be large enough to allow the equipment to be so placed that the work may be routed through to the best advantage. As a suggestion, the plan of the workroom and club-room combined at the Oak Park High School is given.

A more elaborate camera than a hand-camera will be necessary for the extensive program outlined. An 8 x 10 view-camera with a 5 x 7 back will answer the purpose, with a very substantial tripod. The first lens should be a high-grade anastigmat of at least 12 or 14 inches focal length covering the 8 x 10 easily and at the same time giving a good lens for portraits with the 5 x 7 back. A wide-angle lens may be added if many interiors are to be attempted. Later, a diffused-focus lens will add pictorial



KEY TO PLAN OF DARKROOM AND CLUBROOM, OAK PARK HIGH SCHOOL, OAK PARK, ILL.

A. Film-developing room.
B. Loading and unloading shelf.
C. Film-developing and washing sink.
D. Film-drying room.
E. Chemical cupboard.
F. Paper cabinet.
G. Printer.
H. Double sink, with slat frames over top for trays.
I. Print washer.
J. Print dryer.
K. Vertical enlarger.
L. Work table, storage underneath.
M. Negative file.
N. Stereopticon table and slide storage.
O. Projection screen with sliding blackboard over.
P. Demonstration table, storage under.
Q. Raised steps for chairs.
S. Safelights.
T. Sink.
U. Blackboard.
V. Portable Cooper-Hewitt light.
W. Portable 1000-watt lights.
X. Portable arc light.

quality to the work. But it will take some time to master the first lens.

In the way of darkroom-equipment, the club will need two developing-tanks accommodating either 8 x 10 or 5 x 7 film, one for developing and one for fixing, which should stand in a long sink next to a metal tank for washing. A printer is necessary where prints are made in any quantity, and should stand between a paper cabinet and a sink with slat frames across the top, holding trays for developing, rinsing and fixing. A print-washer is a convenience, as is also a print-dryer. There should be a metal file for negatives, and also a vertical enlarger. To the photographic worker a number of other necessities will suggest themselves—a timer, thermometer, graduate, and so on. Several portable lights should be included—an arc and one 10-watt Mazda.

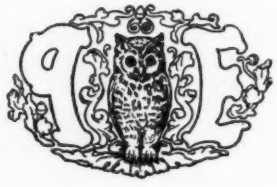
The meetings should be made instructive and entertaining at the same time. With a group of beginners, lectures on the use of the hand-camera, on the lens, exposure developing, and so on, down through composition, will prove advantageous. They may be given by the adviser of the club if he is qualified or willing to take the time to prepare them as he would any class-room lectures or demonstrations. In larger cities, representatives of the large photographic houses will be glad to come to the school for an occasional talk or demonstration. Trips should be made to commercial and portrait-studios, newspaper photo-plants, photo-engraving plants, and motion-picture studios, if available, as well as places of natural beauty, where demonstrations of correct methods of picture-making may be demonstrated, and results compared at the next meeting. People who have traveled or have collections of lantern-slides or photographs ought to be available for talks. It is a good plan to hold at least one contest during the year—vacation-pictures, winter-scenes, and so on. Traveling-exhibits can be brought to the club, and possibly the club can visit the exhibit of an adults' club. The club should gradually accumulate a library of good photographic books, subscribe to a magazine or two, and also make up a set of lantern-slides on interesting subjects.

Although every member of the club should be a worker, and learn something about photography as a hobby, the club should be organised, like any other business, for taking care of the activities it has mapped out in its program. One student should be responsible for the photographing, another the developing, the printing, the selling to students. Each department-head can choose his assistants to help him handle his department. In this way the value of business organisation goes hand in hand with technical training. It is doubtful if any other club in a high school offers the possibility of so varied a training to its members; and, at the same time, is of such practical value to the school.

If possible, the faculty-adviser should be one who has mastered the hand-camera, and has had some experience with more advanced work. Better yet, possibly, is an adviser that is thoroughly interested in the work, and is willing to spend the necessary time to acquire the necessary photographic knowledge.

Membership in the club should not be too large to work efficiently—say twenty-five. There will be no question of lagging interest if members are chosen who are really interested in photography, and are not just joining to belong to a club. Inform all prospective members that the club is more interested in work than in parties and refreshments, and weed out the drones.

In case photography is already being taught as a regular subject—as it should be in many schools—then the purpose of the club may swing more to the æsthetic than the practical side, and be composed of members who have received their technical work in class, and the class could do a large amount of the photographic work outlined for the club.



ROCKPORT HARBOR
HAROLD H. SEATON
HONORABLE MENTION—BEGINNERS' COMPETITION

PASS-FINDER

YOZAN T. IWASAKI

HONORABLE MENTION—OUTDOOR-GENRES

EDITORIAL

The Disfiguring Lipstick

DESPITE its abuse in ignorant and careless hands, the lipstick has come to stay. Indeed, since the ladies of ancient Egypt and Assyria found it an indispensable accessory to their dressing-tables, the lipstick has come down through the ages as a favorite toilet-implement of the aristocracy and the royal courts. As one examines portraits by Romney, Raeburn, Gainsborough, Reynolds, one seems to observe traces of the lipstick, but moderately and artistically applied—if at all. Its necessity as a part of the makeup for the histrionic stage and private theatricals is freely admitted; but when it comes to a reckless application of it, as practised by flappers, for instance, one's sense of good taste rebels.

A person of critical refinement shudders at the sight of an attractive young woman pictured in the newspapers with both lips blackened alike—no distinction between the upper and the lower lip. It may not be generally known, to the lay public, that red appears black in a photograph. Now, as a matter of fact—according to the laws of light and shade—the lower lip always appears much lighter than the upper one. Why? For the simple reason that the light usually comes from above, and falls upon the lower lip, either vertically or obliquely, or both, leaving the upper lip almost entirely in the shade. It is curious how few persons have noticed this particular feature of the illuminated human countenance. It is, therefore, easy to understand why devotees of the lipstick make no distinction in the appearance of the lips they smear so grotesquely. It is, perhaps, too much to expect that, with their limited mental capacity, these persons should try to understand the elementary laws of light and shade, in order to make an intelligent use of their favorite facial ally.

Nearly every patron of a professional portrait-studio honestly believes that she is helping the photographer to make a flattering portrait of her, by carefully beautifying herself with the aid of cosmetics. She is, therefore, greatly astonished, when, about to seat herself before the camera, she is politely requested to remove every trace of facial make-up. It is then explained to her that her careful efforts to improve the appearance of her face only hinder the photographer in his efforts to make a pleasing and satisfactory portrait. With the aid of the soft-focus lens and the retouching pencil he is capable of producing results that cannot fail to please the sitter.

As usual, an illuminating and instructive feature of the recent convention of New England photographers at the Statler Hotel, Boston, was a large and varied collection of portraits by the leading photographers of the United States and Canada, among which was the portrait of an attractive laughing girl, Miss Jean Smith, of Venice, Calif., which had been selected from one thousand portraits sent to the Pacific International Photographers' Association, held at Los Angeles last autumn. This picture was published on the second day of the convention in the *Boston Herald*, and very appropriately proclaimed the fact that the young lady's lips betrayed not the least trace of make-up. This is probably one of the reasons that her portrait appealed successfully to the good taste of the judges. This would seem to prove that photographers in general disapprove every degree of facial make-up, and that they may be trusted to exercise their judgment when they notice any marked interference with Nature's handiwork. The studio-portrait of Clara Kimball Young—published in the *Boston Herald* recently, and that of Ruth Elder in the *Boston Traveler* shortly after, admirably justify the omission of every trace of beautifying means. It is sincerely to be hoped that every artistic portrait photographer—professional and amateur alike—will not fail to express his appreciation to the newspaper which shows such discriminating taste. Let us, therefore, all work together to maintain a refined standard in photographic portraiture.

Improving the Process Print

IN improving the process-print, the specialist should remember to adhere as closely as possible to the truth of the original negative. Of course, truth at all times—particularly in pictorial work—is not only commendable, but to be insisted upon. If the specialist desires to change a dull-looking landscape into one filled with sunshine, that is his privilege; but let the result be logical as well as pleasing in any event.

ADVANCED COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA MAGAZINE, Advanced Competition
Wolfeboro, New Hampshire, U.S.A.

Prizes

First Prize: Value $10.00.
Second Prize: Value $5.00.
Third Prize: Value $3.00.

Honorable Mention: (*a*) Those who win an Honorable Mention Award and are *not regular subscribers* will receive PHOTO-ERA MAGAZINE for six months with the compliments of the publishers.

(*b*) Those who win an Honorable Mention Award and are *already subscribers, or have been subscribers,* will receive an Honorable Mention Certificate. Those who win ten of these certificates and send them to us to be recorded will receive a neat silver cup, suitably engraved. There is no time-limit. However, ten certificates must accompany all requests for the cup.

Prizes may be chosen by the winners, and will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA MAGAZINE, or in books. If preferred, the winner of a first prize may have a solid silver cup, suitably engraved.

No Prize or Honorable Mention pictures are sold, exchanged or the halftone-plates sold without permission, in writing, from the maker of the print. Proceeds of all sales, *excepting halftones,* go to the maker of the picture.

All competition-pictures not returned are used to make up the PHOTO-ERA PICTURE EXHIBIT which is sent to schools, libraries, museums, camera clubs, and to responsible organisations for exhibition-purposes, *free of cost.*

Rules

1. This competition is free and open to photographers of ability and in good standing—amateur or professional.

2. Not more than two subjects may be entered, but they must represent, throughout, the personal, unaided work of competitors. Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered into competitions elsewhere, before PHOTO-ERA MAGAZINE awards are announced.

3. Prints on rough or linen-finish surface, and sepias, are not suitable for reproduction, and should be accompanied by smooth prints having the same gradations and detail. Prints may be mounted or unmounted.

4. Each print must bear the maker's name and address, the title of the picture, and the name and month of competition, and should be accompanied by a letter, *sent separately,* giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer, and printing-process. Enclose return-postage. Data-blanks sent at request.

5. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA MAGAZINE, unless for special reasons. This does not prevent the photographer from disposing of other prints from such negatives *after* he shall have received official recognition.

Photo-Era Prize Cup

6. Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces is sent with data.

7. Prints should be carefully packed between two layers of cellular board so cut that the corrugations run at right-angles to each other.

8. Competitors who have won three first prizes within a twelvemonth become ineligible to compete for prizes in this competition for *one* year thereafter.

AWARDS—ADVANCED COMPETITION
Subject—OUTDOOR GENRES
Closed September 30, 1927

First Prize . . . . . Dr. K. Koike
Second Prize . . . . . Dr. F. F. Sornberger
Third Prize . . . . . G. W. French

Honorable Mention: Hugh Bostwick; J. V. D. Bucher; Yozan T. Iwasaki; George Kellerman; Alexander Leventon; Anne H. Mellin; Robert R. Miller; Lad. Kozechuba; A. J. Pandian; W. A. Phillis; Werner A. Richter; J. H. Saunders; Edna Seaton; Henry Sill; R. M. Weller.

HARVEST-TIME

FIRST PRIZE—OUTDOOR-GENRES

DR. K. KOIKE

Second Prize

ADVANCED
COMPETITION

OUTDOOR-GENRES

GOING TO SCHOOL — DR. F. F. SORNBERGER

Third Prize

ADVANCED
COMPETITION

OUTDOOR-GENRES

CALL OF THE WILD — GEORGE W. FRENCH

SUBJECT FOR NEXT COMPETITION

ADVANCED WORKERS

Subjects for Competition—1927

"My Home." Closed January 31.
"Portraits." Closed February 28.
"Indoor-Genres." Closed March 31.
"Table-Top Photography." Closed April 30.
"Artificial Light Photographs." Closed May 31.
"Architectural Subjects." Closed June 30.
"Pictures of Children." Closed July 31.
"Landscapes." Closed August 31.
"Outdoor-Genres." Closed September 30.
"Animal Pictures." Closed October 31.
"Water-Scenes." Closes November 30.
"Vacation-Pictures." Closes December 31.

My Home

SOMEONE is quoted as saying that home was "wherever I hang my hat". This may or may not be strictly true. Very often a shelter is not necessarily a home. Again a princely mansion may not be home to those who live in it. Home is very much a matter of heart as well as furniture and decorations.

In this competition the purpose is to make the camera convey to the observer some outstanding pictorial reason for your calling a cosy cottage, a steam-heated apartment, or a country estate your home. Can you put into the picture one or more of the things which make your home a home to you? No matter whether it be something pretentious or some little thing about the home which adds to your comfort and happiness, try to make something of it pictorially. Quite a task, you say. Yes and no. It all depends on how you go about it and whether or not something tugs at your heart-strings when you think of home. It is said that, even as in music, photography can be made to express emotion and feelings not readily put into words. Let us put the matter to practical test.

A. H. BEARDSLEY.

THE HOME-PORTAL — J. D. CREEGAN
EXAMPLE OF INTERPRETATION

BEGINNERS' COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA MAGAZINE, Beginners' Competition
Wolfeboro, New Hampshire, U.S.A.

Prizes

First Prize: Value $7.50.
Second Prize: Value $3.50.

Honorable Mention: (*a*) Those who win an Honorable Mention Award and are *not regular subscribers* will receive PHOTO-ERA MAGAZINE for six months with the compliments of the publishers.

(*b*) Those who win an Honorable Mention Award and are *already subscribers, or have been subscribers,* will receive an Honorable Mention Certificate. Those who win ten of these certificates and send them to us to be recorded, will receive a neat silver-cup, suitably engraved. There is no time-limit. However, ten certificates must accompany all requests for the cup.

Prizes, chosen by the winner, will be awarded in photo-materials, sold by any dealer or manufacturer who advertises in PHOTO-ERA MAGAZINE, or in books.

No Prize or Honorable Mention pictures are sold, exchanged or the half-tone plates sold without permission, in writing, from the maker of the print. Proceeds of all sales, *excepting halftones,* go to the maker of the picture.

Rules

1. This competition is open only to beginners of limited experience with practical camera-activity, and whose work submitted here is without any practical help from friend or professional expert.

2. Workers are eligible so long as they have not won a first prize in this competition. Winners of the first prize automatically drop out permanently, but may enter prints in the Advanced Class at any time.

3. Prints eligible are contact-prints and enlargements up to and including 8 x 10 inches.

4. Prints representing no more than *two* different subjects, for any one competition, and printed in any medium except blue-print, may be entered. Prints may be mounted or unmounted, as desired. Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competitions elsewhere, before PHOTO-ERA MAGAZINE awards are announced.

5. Prints on rough or linen-finish surface, and sepias, are not suitable for reproduction, and should be accompanied by smooth prints having the same gradations.

6. Each print entered must bear the maker's name and address, the title of the picture, and the name and month of competition, and should be accompanied by a letter, *sent separately,* giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks sent at request.

7. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA MAGAZINE, unless for special reasons. This does not prevent the photographer from disposing of other prints from such negatives *after* he has received official recognition.

8. Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces or fraction is sent with data.

9. Prints should be carefully packed between two layers of cellular board so cut that the corrugations run at right angles to each other.

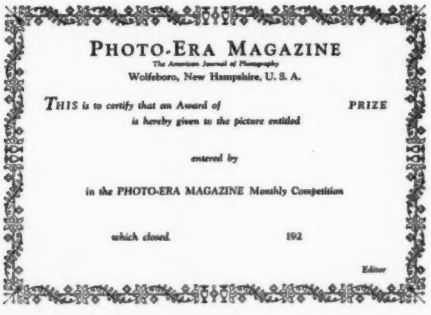


PHOTO-ERA MAGAZINE
The American Journal of Photography
Wolfeboro, New Hampshire, U. S. A.
THIS is to certify that an Award of PRIZE
is hereby given to the picture entitled
entered by
in the PHOTO-ERA MAGAZINE Monthly Competition
which closed 192
Editor

PRIZE-WINNERS' CERTIFICATE

PHOTO-ERA MAGAZINE
The American Journal of Photography
Wolfeboro, New Hampshire, U. S. A.
THIS is to certify that an Award of *Honorable Mention*
is hereby given to the picture entitled
entered by
in the PHOTO-ERA MAGAZINE Monthly Competition
which closed 192
Editor

HONORABLE MENTION CERTIFICATE

AWARDS—BEGINNERS' COMPETITION
Subject—MISCELLANEOUS
Closed September 30, 1927

First Prize . . . . . Godfrey Priester
Second Prize . . . . . Vincent Dolfi

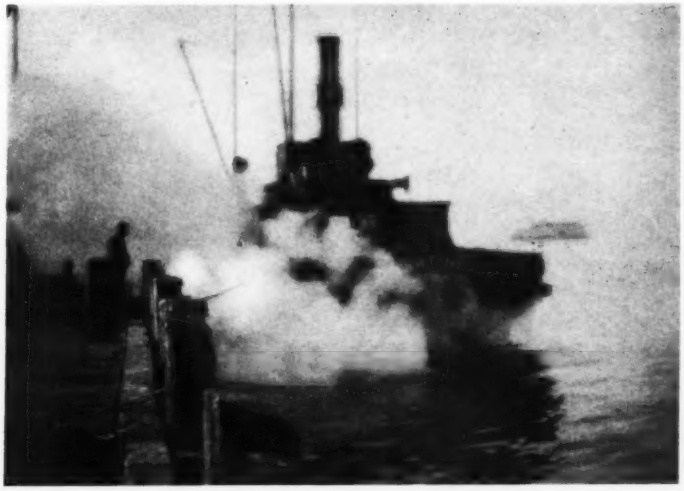
Honorable Mention: Edward Alenius; Howard P. Crane; J. Daniels; Ewald Haase; Alma R. Lavenson; Robert W. Meader; Helen E. Miller; R. P. Sandaraji Pillai; William C. Pryor; Harold H. Seaton; W. H. Smith; Philip O. Weston.

First Prize

BEGINNERS'
COMPETITION

MISCELLANEOUS

STREET-PEDDLERS — GODFREY PRIESTER



THE EMBARCADERO — VINCENT DOLFI

Second Prize

BEGINNERS'
COMPETITION

MISCELLANEOUS

EXPOSURE-MAKERS' COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA MAGAZINE, Exposure-Makers' Competition
Wolfeboro, New Hampshire, U.S.A.

Prizes

First Prize: Value $5.00.
Second Prize: Value $2.00.

Honorable Mention (*a*) Those who win an Honorable Mention Award and are *not regular subscribers* will receive PHOTO-ERA MAGAZINE for six months with the compliments of the publishers.

(*b*) Those who win an Honorable Mention Award and are *already subscribers, or have been subscribers,* will receive an Honorable Mention Certificate. Those who win ten of these certificates and send them to us to be recorded, will receive a neat silver-cup, suitably engraved. There is no time-limit. However, ten certificates must accompany all requests for the cup.

Prizes, chosen by the winner, will be awarded in photo-materials, sold by any dealer or manufacturer who advertises in PHOTO-ERA MAGAZINE, or in books.

No Prize or Honorable Mention pictures are sold, exchanged or the half-tone plates sold without permission, in writing, from the maker of the print. Proceeds of all sales, *excepting halftones,* go to the maker.

Entries are not eligible to Trophy Cup Contest.

Rules

1. This competition is open *only* to amateur photographers who for lack of time or equipment *cannot do their own photo-finishing.* Each contestant must compose his own picture and make the exposure without aid from friend or professional.

2. The name of the photo-finisher must appear on each print submitted. It will be printed under each prize-winning or Honorable Mention picture published.

3. Prints eligible are contact-prints and enlargements up to and including 8 x 10 inches.

4. Prints representing no more than *two* different subjects, for any one competition, and printed in any medium except blue-print, may be entered. Prints may be mounted or unmounted, as desired. Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competitions elsewhere, before PHOTO-ERA MAGAZINE awards are announced.

5. Prints on rough or linen-finish surface, and sepias, are not suitable for reproduction, and should be accompanied by smooth prints having the same gradations.

6. Each print entered must bear the maker's and photo-finisher's name and address, the title of the picture, and the name and month of competition, and should be accompanied by a letter, *sent separately,* giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, and exposure. Enclose return-postage in this letter. Data-blanks sent at request.

7. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA MAGAZINE, unless for special reasons. This does not prevent the photographer from disposing of other prints from such negatives *after* he has received official recognition.

8. Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces or fraction is sent with data.

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which closed. 192

Editor

HONORABLE MENTION CERTIFICATE

AWARDS—EXPOSURE-MAKERS' COMPETITION

Subject—MISCELLANEOUS

Closed September 30, 1927

First Prize . . . . . Paul W. Kearney
Second Prize . . . . . James G. Johnson

Honorable Mention: George B. Davis; Lois Snelling

First Prize

EXPOSURE-MAKERS'
COMPETITION

Photo-finished by

Willoughbys
New York City

PORTRAIT OF H. R. H. — PAUL W. KEARNEY

Second Prize

EXPOSURE-MAKERS'
COMPETITION

Photo-finished by

Willoughbys
New York City

AFTERNOON-HAZE — JAMES G. JOHNSON

OUR CONTRIBUTING CRITICS

WINTRY REFLECTIONS — ANNE H. MELLIN

THE PICTURE CRITICISED THIS MONTH

Whoever sends the best criticism (not over 200 words) before the last day of the current month, will receive from us a three-month subscription to PHOTO-ERA MAGAZINE. *The winning criticism, in our opinion, is the first one printed below. Criticism should be helpful and courteous.*

Seven Criteria for Critics

(1) Background and Sky. (2) Foreground and Figures. (3) Main Interest vs. *Distraction. (4) Gradations and Tone Values. (5) Lines and Masses. (6) Atmosphere and Interpretation, and (7) Photographic Technique.*

ANY comment on "Wintry Reflections" as a pictorial effort must acknowledge, first of all, its high technical excellence as a realistic interpretation. The fine tonal qualities reveal an intelligent comprehension of the laws relating to illumination and exposure-time. A due sense of balance and proportion is seen in its component parts. The foreground is particularly successful in the subjugation of excessive highlights from the surface of the ice-masses which relieve any appearance of monotony and give merit to the title. Background and sky are suitably rendered.

However, this effort has its limitations in pictorial attainment. Its many excellencies are those of particular parts rather than of an ensemble. In its somewhat panoramic form it suffers from a surfeit of picture-material which leads to diffusion of interest, an effect augmented by its many vertical lines. It contains a series of pictures, each almost, if not altogether, equal in value to the whole.

As an artistic composition it lacks that primary requisite, an adequate centrality, to which all the elements should lend their support. There is no point to which the attention is inevitably brought; no concentration of interest, as the lines lead nowhere in particular. The effect is a loss of unity, which no manipulation of the negative or printing dodge can remedy.

Further, as this picture's chief claim to beauty lies in its excellence of rendition, it seems devoid of mystery—beauty's most charming quality—and fails in its true mission; it does not reach the high note of imaginative appeal. We seek in vain for its message, and even the title does not assist.

J. W. ADAIR.

WITHOUT doubt this is one of the most artistic prints that has appeared for many a long day in these columns. Miss (or Mrs.) Mellin has demonstrated first, the sense of beauty necessary for an artist and, secondly, the mastery of technique necessary to express that idea by photographic media.

There is a finish, a completeness, a harmony that is charming, and constitutes an exemplification of what photography can do in the hands of a capable artist. Technically the exposure is just right. Note, as a result, the exquisite gradation in the rendering of

JUNE — P. H. MOON

YOUR CRITICISM IS INVITED

tones in the trunk of the tree on the right and the luminous shadow cast by the bough. Even note the texture of the snow at the distance it is from the camera. There is a balance and poise of interest that is admirable; no conflict of incongruous and competing points of attraction. From the deepest black to the whitest highlight there is exquisite gradation. (If anyone wants to know what is meant by those words, let him contrast this print with the print on the page opposite to "Wintry Reflections" in the October number of PHOTO-ERA MAGAZINE.) The view is just as it would appear to the normal human eye; that is to say, it is not spoiled by a fuzzy background. The whole scene is a magnificent vindication of what clean, straight, honest photography can do.

A captious critic, applying a rule-of-thumb formula, might object that the leaning tree at the right leads the eye out of the picture. On the contrary, in my humble opinion, it helps to relieve the monotony of too many vertical lines. Possibly the highlight on the tree in question and that of the upright in the center background might be toned down just a hair; possibly an inch might be trimmed off the left of the print.

Nevertheless, taken as it is, the picture is a truthful and artistic delineation of a winter-scene of rare beauty. Such work may be described as "a thing of beauty and a joy forever".

E. L. C. MORSE.

LIKE many negatives, this print has too much wealth, being essentially a lapping of several compositions. Were the great tree at a similar position in the left foreground, the picture would be in serpentine composition to distance at the right background. A section, 1⅞ inches wide by 2½ inches deep, to cut off some of the foreground water at the right, would make a composition of the four principal trees. A section, 2 inches wide from a point 1 3/16 inches from the right margin, would place the nearest tree in the foreground, balanced by the bark-stripped tree beyond the water as a "destination". A section starting 2 inches from the right, and 2 inches wide, would create a composed subject of "Wintry Reflections", with the stripped tree giving a satisfying accent in the distance. A section, 1⅞ inches wide from the left edge, would also give a composition. In each case there is in each unit one dominant element; and the excess of verticals is harmonised by use of vertical formats, except the shorter picture at the extreme right, which is a vista framed by tree-trunks. Pictures should have a "lead in" to one prominent focus or object in the distance, as a final resting place for the eye. This means simplicity of subject, and the discarding of dead-wood not belonging to the composition.

LOUIS DUNCAN RAY.

THIS picture exemplifies a grade of technical merit for which, even in salon pictures, we often look in vain. As a photographic record of this particular locality in winter, it is perhaps all that can be desired.

Unfortunately, it is almost completely lacking in the requisites of composition. There is no unity, no coherence, no emphasis. The lines formed by the floating ice are much too weak to affect the unconnected verticals repeated with equal strength.

The familiar device of selective masking with two L-shaped pieces of black paper fails to reveal any unified coherent composition to be had by trimming. Two improvements, but by no means complete solutions, are to use two and one-quarter inches at the left, or one and three-quarters inches at the right, as vertical panels.

This last illustrates well the faulty proportions of the popular 3-A and 2-C sizes of cameras. Elongated spaces like these are hard to fill with satisfaction. Most frequently the composition may be improved by trimming away a considerable part of the longer dimension. Also the longer side usually should be vertical or horizontal in accord with the major lines of the composition.

B. H. JACOBS.

PERHAPS I am wrong, I don't know; but I am not going to say a word against this picture. I like it; and studying it for defects made me like it more. If I could produce as pleasing a picture as this with its beautiful tones and atmosphere, I would feel that I had accomplished something.

At first it seemed that the large tree at the right was too obtrusive and that the eye became lost in this

(*Continued on page 338*)

OUR ILLUSTRATIONS

WILFRED A. FRENCH, Ph.D.

[SPECIAL NOTE: *Although Mr. French is much improved and on the road to recovery from his recent serious illness, he is still not sufficiently strong to attempt the preparation of material for this department. We are again indebted to Mr. E. H. Washburn, pictorialist and photographic technician, for this month's "Our Illustrations" which we are sure our readers will find of interest and practical value.*—EDITOR]

"OLD IRONSIDES", on page 308, is a good half-tone reproduction of the original color-print, which is described in Editor Beardsley's article. It is surely a great satisfaction to see PHOTO-ERA MAGAZINE furthering the cause of restoring the famous old warship. The present writer has one of these prints, framed, in his living room; and it is admired by all who see it.

Every household in the land, whether on the coast, or in the interior states, should display one of these beautiful pictures. The editor has explained the reason for the extremely nominal price charged, and the writer is reliably informed that the edition ordered by the Government was 3,000,000 copies, making possible the price.

Charlestown Navy Yard at Boston is a familiar spot to the writer who has had ample opportunity to examine the old frigate "Constitution" before the campaign for restoration, and always felt a pang at the thought of the old vessel's disintegration and decay, as shown in one of the photographs here reproduced.

One ever-to-be-remembered visit to the old ship was on the occasion of the institution of a fraternal lodge, which ceremony was held on the deck of the vessel; a truly historic occasion, which the writer was honored to attend. To one nautically inclined, as the writer is, the print on page 309, showing the vessel's bow, is specially interesting; displaying the modelling of the forward part of the hull and the beautiful, ornamental figure-head on the bow. Comparison of this with the artist's painting shows with what accuracy to details his eye and brush worked. "Old Ironsides Under Reconstruction" depicts the extreme precautions taken to brace the hull in dry-dock, that no portion of the weakened hull might suffer further damage. Now, happily, the work is well under way, and in due time "the eagle of the sea" shall again float proudly on the bosom of old mother-ocean, as she was wont to do in the historic years of the century gone by.

The group of six interesting stage scenes, illustrating Robert R. Miller's article on pages 288 to 292, are not only highly instructive, but also excellent examples of stage photography. Mr. Miller tells us in the text just how to do it. We imagine, however, that it is like slight-of-hand work—"easy, when you know how". Our personal preference is No. 2 and No. 6 in the order named.

This issue of PHOTO-ERA MAGAZINE has a strongly educational trend. The prints on page 319, illustrating Gilman Lane's article, should prove interesting and helpful to schools intending to install similar accommodations and equipment. Perhaps it is superfluous to point out the superior technical excellence of these companion prints; yet we note it with satisfaction.

Advanced Workers' Competition

IN Outdoor Genres, it is essential to have the story-telling qualities predominate. Otherwise the picture falls within the domain of landscape with figures. Having these principles in mind, it is quite evident why Dr. Koike in "Harvest Time" (page 327), captured first award. He made good use of the forementioned principle, and all landscape features are entirely subordinated to the figures; and he has left plenty of room to move toward the left. Strength and concentration are attained by the highest lights and deepest darks coming in contact, in the horses and in the figure of the mower. The principle of repetition is well exemplified in opposing blacks and whites in the horses, first; then in the figure and again in roof and chimney, which latter also serves as a balance for the figures. The wide sky-span lends the outdoor feeling, abetted by the dimly outlined mountains. The sky, though unclouded, is not blank, but has much gradation.

Data: 3-A Kodak, Zeiss Tessar F/6.3, full open. Exposure 1/50 second at 4 P.M., in June, clear light, on roll-film, developed in Pyro. Print on Rapid Black E. Rough.

To be consistent with the title, we feel that considerable of the sides of Dr. Sornberger's second prize print, "Going to School", could be cut away; one inch from the right side and almost as much from the left. Then, if possible, lighten somewhat the near fence, leaving the two boys the darkest and strongest feature. The scene is typical of January thaw weather, and the "wet" quality is excellent. The boys really move and appear intent on getting to a more congenial spot. Nowadays an auto-bus would be carrying them.

Data: Made with Goerz Dagor lens F/6.8; 6-inch focus, on Commercial Ortho film, in 1/50 second. M. Q. developer. Enlarged on Haloid Enlarging Portraya.

For originality of treatment, George W. French's "Call of the Wild" is pre-eminent. Many camerists have simulated firelight by means of a flash, but we do not recall having heard of a gasolene lantern being used for the purpose. Apart from this, the twilight conditions are real, and Mr. French succeeded wonderfully in recording them. This required exact knowledge of exposure, which data tell us was 75 seconds, or 1¼ minutes, a very unusual period for outdoors. The composition is a happy one. It is barely possible that a very slight ripple on the surface of the lake might have suggested a cool, evening breeze, without interfering with the tranquillity of the scene; but then again it might not. A little smoke would help to make the fire more realistic. The whole is very beguiling, and does credit to the author. Few camerists, we opine, would have had the ingenuity to attempt to make it.

Data: Seneca camera 5 x 7, B. & L. rapid rectilinear lens, 9-inch focus. Exposure 75 seconds at U. S. 8, at 8 P.M. in August, in Maine. Commercial Ortho film was used and developed in Pyro-Metol-Hydro. Print on Azo, from enlarged negative.

"Listen to the Mocking Bird", by Robert R. Miller (page 287), is well handled, and baby's expression of intense interest no doubt inspired the title. Mother's interest in baby is fine, and accentuated by her parted

lips. Her profile is classic, strong and beautiful; and her well-shaped head, firmly poised on graceful neck and shoulders, bears evidence of her vigorous, healthful womanhood. The hair, in its wonderful wavy abundance, is in perfect harmony with her face. The simplicity of dress in both models is commendable. Spotting down a few of the white "blobs" in the background would greatly improve the whole.

Data: 3-A Kodak, with Kodak Anastigmat lens at F/8 with diffusion disk. Exposure, 1/25 second, on Eastman roll-film. Pyro-elon developer. Print on Velour Black Veltex developed in amidol.

From Prague, Czechoslovakia, comes Ladislav Kozechuba's honorable mention picture, "A Beggar" (page 295). This is good in technique, but we would like to have more of the top cut off to get rid of the too brilliantly lighted balustrade and ornamental metal work on the post. The beggar is rather too comfortably dressed to appeal to our sympathies.

Data: Mentor reflex camera, with a periscopic soft focus lens of 21-cm. focus. Exposure, 1/15 second at F/10 on Perutz Ortho Antihalo plate. Developer, Rodinal; paper, Criterion bromide.

Far-away India contributes a print from A. J. Pandian, Tanjore: "An Indian Harvest." It is a good piece of work, well chosen as to lighting and composition. The simplicity of it is a marked feature. The figures bent forward and their relative positions afford a feeling of action and movement.

Data: Adams Tropical Minex Delux ¼-plate camera, with Ross combinable lens, F/5.5. Exposure, 1/64 second at full aperture on Ilford Special Rapid Panchromatic plate, developed in Rodinal. Kodak Nikko glossy paper developed in dilute Rodinal (1 in 60).

J. V. D. Bucher's "Workmen" (page 301), is interesting in subject but complicated in material. All hands are certainly enjoying their lunch-time confab around the heater. No jaded appetites here, and no "menu" required or desired. The "guy" sitting on the wheel-barrow, with pointing hand, evidently holds the floor, and is being paid attention by the "bunch". The composition may be called circular, but the perspective is necessarily distorted, owing to the camera being pointed downward.

Data: Graflex 4 x 5 camera, Zeiss F/4.5 lens of 25 cm. (10-inch) focus, at F/11. Exposure 1/25 second, in March, on Iso Zenith plate. Developer is said to be "Chicago Tribune" (which we thought was a newspaper). Print on Eastman Parchment Bromide.

Dr. Yazan Iwaski is fond of simple patterns of few tones, as shown in "Pass Finder" (page 324). Somehow, we can't rid our mind of a feeling that the man is in imminent danger of the big cloud falling on him, as it appears to overhang his head. Evidently a case of over-correction in the filter or under-exposure.

Data: Ensign 3¼ x 4¼ camera, Aldis F/6 lens of 5¾-inch focus, full open. Exposure, 1/25 second through 10-times filter, in August at noon, in bright light. Roll-film developed in elon-hydro-pyro. Print on P. M. C. No. 9. Made in Mt. Baker region, National Forest, Washington.

Beginners' Competition

By reason of being "miscellaneous", with respect to the subjects eligible, this competition brings in a large collection of all sorts and grades of technique and composition, or selection of subject. Some competitors appear to have very distinct ideas, and abilities to carry them out, while others have a great deal to learn. Indeed, the leaders often crowd close on the heels of the advanced workers, so that it is a wise rule which automatically promotes the first-prize winner into the advanced class. This is markedly true of Godfrey Priester, who wins first award this month, and is thereby graduated from the beginners' class. His recent good work bears evidence that he is apt to press hard for honors in the advanced class, if he develops as rapidly as he has been doing. His "Street Pedlers", page 331, demonstrates his ability to work in a subject of short tonal-range, this print having only about four or five gradations, yet with value in every one, without undue harshness in the whole, notwithstanding that early-morning March-sunlight is generally very contrasty. Good appreciation of angle and perspective is evident; and the dark shadow at the extreme left, broken by the less-strongly lighted building, prevents a too abrupt transition from the highly lighted nearer building. We feel that the straggly tree-shadows on the extreme right are disturbing, and suggest trimming away just enough to leave only a suggestion of the door; and are of the opinion that the composition is strengthened, also, thereby. It will be noted that the print has a marked etching-like quality.

Data: Made in Munich (old city), Germany, in March at 8.30 A.M.; clear light, with Zeiss Tessar F/4.5 lens, of 13.5-cm. focus at F/12.5. One second exposure through K-2 filter on Hauff Ortho N. H. plate, developed in Hauff Neol. Print on Mimosa (German-made) paper. Printed in America.

The second-prize print, "The Embarcadero", by Vincent Dolfi, is by no means a chance shot, as the data show. The mass of exhaust steam makes a point of interest for the whole, and the silhouetted figure on the dock gives the needed touch of human interest. Without these a rather featureless and uninteresting subject would be present, and we doubt that Mr. Dolfi would have exposed a plate. The hazily defined ferry-boat in the background creates a feeling of distance and atmosphere.

Data: Century 5 x 7 camera, Verito lens, at F/4. Exposure 1/50 second, through color-screen on Panchromatic cut-film, at 3 P.M., in April; bright light. Developer, A. B. C. Elon-Pyro. Velox print.

Notwithstanding the fact that the subject of the frontispiece, "The Light Beyond", by Alma R. Lavenson is similar in composition and treatment to other pictures which have graced these pages, nevertheless this is so very well done in every way, that the judges have awarded it honorable mention, and the editor gives it the place of honor. The perfect balance of lines, afforded by the opposing angles of the cliffs, has been made good use of by the artist, who knew just what she wanted and how to obtain it. Beginning at the lower left, the eye is led along a pleasing undulating line made by the outline of the tree-tops, around the base of the nearer cliff, whence it sweeps upward, and then, turning to the right, follows along the line of the sunlit cliff-edge, to the top, where it again breaks to the left, along the distant summit and so out of the picture. This curving, climbing line is so alluring we quite naturally begin all over again and repeat the ascent, with increasing pleasure. The sense of atmosphere is exquisite and is enhanced by the dreamy diaphanous cloud, drifting through the canyon. Surely a lovely picture; and as this is Miss Lavenson's initiatory effort in Photo-Era competition, we hope to see more of her work.

Data: Ensign Popular Reflex camera 3¼ x 4¼, with 9-inch Waterbury lens at approximately F/6. Exposure 1/25 second, in weak sunlight, on Agfa film-pack developed in M. Q. and enlarged on Enlarging Cyko.

Another honorable mention print is "Rockport Harbor", by Harold Seaton, on page 323. It is perfect in technical excellence, but suffers from a superabundance

of material. In order to simplify it we eliminate a few stones, an old tire, and a plank by taking ¾ inch from the bottom. That helps quite considerably, but we still have too many boats, and so sacrifice the black dory by cutting off another good inch. Now we have the real picture, and it is highly pleasing, needing only suitable clouds to give a better feeling of atmosphere and perspective. They must be summer clouds and lighted from the same angle as the scene, and not too obtrusive.

Data: Ica 10 x 15 C. M. Camera, Zeiss F/4.5 lens, used at F/8. Exposure 1/35 second. on Agfa film-pack, at 12 M., in September; good sunlight, Metol-Hydro developer and print on Novabrom.

Exposure-Makers' Competition

MANY amateurs, although for some reason they do not finish their own negatives and prints, are skillful camerists and well understand the handling of fine apparatus, as this month's prize awards give proof. If they should do their own photo-finishing, they would give the others a good rub for honors. Considering the well-known restlessness and perversity of the genus goat, Paul Kearney's "Portrait of H. R. H." (page 333), is a distinct "bulls-eye". "Billy" looks fully prepared to butt-in, if matters do not suit his ideas. The focusing and position leave nothing for criticism, and the background is excellent.

Data: Telescopic Graflex, B. & L. Tessar, 7½ inch, 1/30 second at F/4.5, on Agfa film-pack, on a hazy, July day, at 4 P.M. (daylight time). Photo-finished by Willoughby's, New York City.

The second-prize picture, "Afternoon Haze", by James G. Johnson, is a little gem, and while not attended by the same difficulties as "H. R. H.", required, nevertheless, a careful and discriminating selection of viewpoint, placement of subject, and knowledge of the best use of apparatus and material in order to preserve the values present in the original scene. The quiet and calmness of whole is surely soothing, and could not fail to bring a feeling of repose to an appreciative observer. The proportion of land and sky is good and the sun, breaking through, balanced by its own reflection and the horizontal cloud-edge, relieves any tendency to monotony. The distance is beautifully and imaginatively portrayed in delicately receding planes. A very slight re-trimming to correct the slanting water lines (which run down toward the right), is necessary.

Data: Ica Reflex Camera, Zeiss lens. Exposure 1/15 second at F/4.5, through 10-times Zeiss filter on Agfa film-pack, at 6 P.M., in September. Hazy after rain. Photo-finished by Willoughby's, New York City.

The New Family-Album

THE old family-album, rechristened as "new",
Once more is replaced where observers may view;
But not as it was—with its pictures all posed
So stiff and so starched that it hardly disclosed
The fact human beings were pictured. Who could
Find much of enjoyment in creatures of wood,
As they seemed? All the life which we knew they possessed
Preserved by this process was surely out-pressed,
And there's no cause to wonder the "old" passed away
To hide in the attic. It just couldn't stay.

The new family-album, reborn from the old,
Brings to us the family in ways that unfold
The soul of the sitter; the spirit is there;
'Tis real living persons its pages declare;
From infant to grand-dame each print does express,
In feature or form, nothing held in duress
By some stiff-stilted art; every picture is true
Of the folks as they are and the things that they do;
The puppets of old-time, as pictured now—live
In a way that is certain great pleasure to give.

The old family-album, in new-fashioned dress,
Now lies on the table to fully impress
That present-day portraits are living and glow
With a warmth that from each pictured face seems to flow
To the heart of the viewer; the eyes and lips speak
Of a friendship you don't have to go far to seek.
It's right there before you, each page that you view
Is a likeness of someone there "speaking" to you,
And though friends may be far, you are quite sure to say,
Though distance may sever, not one is—away.

The new family-album is sure of its place
In the heart of the home, and to each added face,
Pictured there on its pages, a welcome's secure,
A welcome which surely is bound to endure;
Each may be a picture, a product of art;
But an artistry glowing with soul and with heart—
No more posing puppets with features of wood;
But real living persons. There's nothing too good
To say of this album, the P. A. of A.
Has placed on our tables—It's *art*—everyway!

WILLIAM LUDLUM.

Our Contributing Critics

(*Continued from page 335*)

corner without a chance to escape; but trimming this tree away detracted from the general effect rather than adding to it.

Understand, I do not expect that this photograph will ever grace the wall of a salon; but I do believe that an enlargement of it would truly grace the walls of Miss Mellin's home. I congratulate her.

SAMUEL B. PRIEST.

CRITICISM of "Wintry Reflections" when the woods are sodden with the meltings of the nearly departed snow, when the sun is not so low on the horizon, when the air is charged with the expectance of revived hibernated animal and plant life and the ground is covered with half-frozen snow; this is the season of the year so capably represented photographically by Anne H. Mellin. Here photography is shown at its best, and the composition is nicely balanced by the small stump on the left and the small trees on the right.

As the reflections are the main interest, they should not be partially robbed of this by the trunk on the right; and to trim this off entirely would make a vast difference.

It is well rendered, because material under these circumstances is of a dull, colorless appearance, caused by the barren trees, the wintry sun, and the dark peat floors of the pools; and here, credit is honorably due, as correct contrasts are hard to obtain.

The reflections, the essence of the picture, are nicely diffused, probably caused by slight ripples; and do not assert themselves too much. It also appears as if a color-filter has been used with marked effect.

JAMES A. BELL.

ON THE GROUNDGLASS

WILFRED A. FRENCH, Ph.D.

Those Queerly-moving Shadows

ONE afternoon during a painful illness which overtook me last October, I was lying on my back, and amusing myself by watching the constantly-moving shadows projected on the ceiling from beneath the partly drawn shades and emanating from objects moving along the sidewalk on the opposite side of the street. Just then a friend, entirely unfamiliar with photography, called to offer me his sympathy and best wishes for a speedy recovery. While he was chatting with me, he happened to glance upwards and seemed to be fascinated by the constant, diagonally moving shadows on the ceiling and on the wall facing the street. He stopped talking for awhile, and appeared to be wondering what caused these strange shadows. The shades were drawn to within about a foot from the bottom. Knowing the character of these phenomena, I could not help smiling at my friend's puzzled look. Realising that he was ignorant of the cause of these strange figures, I explained to him that they were based upon a common photographic principle, one of a very simple character, namely, the pinhole.

I asked him then to draw the shade—dark green in color and nearly opaque—down to the window-sill. At my suggestion, he took an ordinary pin and with it made a pinhole. Then I asked him to hold a sheet of thick, white paper about ten inches from the pinhole and parallel to the shade, and carefully note the result. He did so, and then uttered an exclamation of surprise; for he beheld an inverted image, in the colors of nature, of the view across the street. I further explained to him the nature of the pinhole—Nature's simple, photographic lens. Not only this, but that it could produce perfect camera-pictures in black and white, requiring only a much longer exposure than if a regular photographic lens were used.

He was so astonished that he thought that I was joking. To convince him of the truth of my statement, I suggested that he have a camera-friend make the experiment and let me know the result. In less than a week's time he reappeared and showed me a very satisfactory contact-print made from a pinhole negative.

A Common Error

NOT a few American tourists who have visited the little church of Santa Maria Formosa in Venice, and admired the glorious painting of Santa Barbara, seem to have the impression that the picture was painted by an Italian artist named Vecchio (pronounce ve-kyo; short "e"), whose real name, however, was Jacopo Palma, il Vecchio (the elder), to distinguish him from his son, Jacopo Palma, il Giovane (the younger). It would be equally foolish to call the latter "Giovane" (pronounce Jo-vah-neh, accent first syllable), as has been done by tourists unfamiliar with Italian art or the Italian language, from whose lips have escaped such atrocities as "Vetchio" and "Jovane."—RUTH BROOKS, in *Boston Herald.*

A Question of Quality

A LITTLE-KNOWN worker in our beloved field of endeavor, one who is not accustomed to write for publication, sends us an item which, when edited, reads as follows:

A certain wealthy pictorial worker whose efforts give an impression of unlimited productiveness rather than of artistic perception, gave an exhibition of his work in the capacious lecture-room of a well-known camera-club. He had invited the art-critics of the local press and, to put them in a happy frame of mind, had provided light refreshments including choice cigars and cigarettes.

Approaching one of the scribes, he said: "What do you think of my pictorial efforts?" "Very good", was the reply, "but you will not be offended if I say that your last year's show was much better." "But", retorted the astonished exhibitor, "I did not have an exhibition last year!" "I am aware of that", was the critic's gentle reply.

"The Charge of the Light Brigade"

As the season of camera-club meetings with their occasional entertainments is now in full swing, it may be well to warn amateur or professional readers, eager to recite certain popular selections, of a slip commonly made, by reprinting one of the Daily Lessons contributed by the erudite Ruth Brooks to the *Boston Herald:*

" 'The Charge of the Light Brigade', the poem by Tennyson, is recited by school boys and professional elocutionists as if it were the charge of a gang of lamplighters and not by a body of troops. No; it was not a lightbrigade, nor even a light-brigade, but a light brigade, with the accent on 'brigade', the noun, as it should be".

"Plateholder" Adopted by Mr. Bayley

THE Complete Photographer, R. Child Bayley, possesses clearness of style, accuracy of facts and breadth of treatment. He is the only English writer who has the courage to prefer the American term, "plateholder", to replace the old-style, time-worn and ambiguous English designation, "dark slide".

True to English tradition, "dark slide", together with "snapshotter", "developing, printing and enlarging"—twenty years ago replaced, at the suggestion of PHOTO-ERA MAGAZINE by the succinct and fitting term "photo-finishing"—will continue to be used by many of our English cousins, until the pyramids of Egypt shall have passed away, or until the Sphinx shall have ceased to survey the Libyan desert.

Is This You?

PHOTOGRAPHER (interviewing prospective porter):—"And remember that what we prize most in this studio is *neatness.*"

Porter:—"Yes, sir; and shall I start by dusting the dead flies out of your display-window?"

Thru the Darkroom Door.

THE AMATEUR KINEMATOGRAPHER

HERBERT C. McKAY, A.R.P.S.
Dean New York Institute of Photography

The Status of Motion-Picture Photography

LET us continue the discussion of last month, which was introductory to a certain extent. We have seen that the motion-picture of today—as commercially exploited—is not a pure art. We have also seen that the art of the motion-picture must be, to a certain extent, a pictorial art; yet the pictorialism must be dynamic rather than static.

It will probably appear from the articles which have appeared in these pages for the last three months that the editor is unalterably opposed to motion-pictures, but truth compels us to confess that this is untrue. In fact, the writer is more or less of a "fan"; but anyone who habitually attends the theater must see that something is seriously wrong with the average modern production. These articles have not been intended as petty attacks upon the existing motion-picture; but rather as possible stimuli which may result in the amateur's developing, even perfecting, the basic motion-picture technique.

The perfect motion-picture would be one which could, in one unbroken scene, without title or animate figure, present a complete idea or emotion. However, absolute perfection is neither attainable nor desirable. Only the perfect artist could truly appreciate the perfect motion-picture—and a perfect artist must necessarily be a tremendous bore. However, if we realise the characteristics possessed by the perfect motion-picture, it indicates the path which will lead toward the most pleasing practical motion-picture.

The single scene, untitled picture, indicates to us that we need something more than facial expression, conventional gesture, and trite titling to produce a photo-drama. This brings us back to the starting-point of pictorial art, line, and mass. No doubt most of my readers are familiar with Hogarth's line of beauty. It must follow that a moving point following this line, its speed directly proportional to the depth of the shading of the line, must be a graceful and pleasing motion.

We may accept as fact, then, that the moving point whose path is a line which conforms to the principles of static composition, is in itself an essential component of the successful dynamic composition. Theoretically then, if a motion-picture were to be made of the hand of an artist drawing a design, the motions of the pencil would represent, in full technical excellence, dynamic composition. This would be true, of course, only if the pencil moved without hesitation, and in definite progression. Practically, such a motion-picture would hardly be attractive, although it might be an excellent study! It serves, however, to illustrate the point.

Carrying this idea a step farther, a group of actors performing a ballet would represent, under certain circumstances, a technically perfect production. Thus our first example might be compared to line-exercises, the second to applied design. Many still photographers show a distinct leaning toward pure design; but it must be confessed that such works are appreciated more fully by other artists than by the laity. Their appeal is one of technical excellence rather than one of purely emotional character. Although a means to an end, pure design is not to be encouraged as an end result. The art of the nation must be one which carries its unmistakable message while concealing the mechanism by which that message is carried. The art which lives must be the art which is fully concealed within itself.

In the practical application of this new art to the amateur motion-picture, the beginning must be with the line. The vertical line lends dignity and grandeur to a scene; the oblique line gives us a spirit of force and of motion, and the horizontal line is the line of peace and of calm. The elementary mass is the triangle followed in importance by the oval.

Many of the elements of true art have been incorporated in motion-pictures, not through conscious recognition of their existence, but in blind obedience to natural actions and reactions. Thus we find that in costume-plays, the voluptuous siren of ancient times is usually shown reclining, calm, almost dreamy in attitude; but when angered, she springs to her feet, the change from the horizontal to the vertical being in compliance with the laws of art—and of life. The greatest forward step in motion-picture technique will have been taken when these motions are consciously recognized, not as natural reactions to emotion, but as artistically correct elements in dynamic *pictorial* representation.

Mass-composition has also been used in professional productions. It is as accepted law in motion-pictures that, ordinarily, the star shall not be crossed; that is, no minor performer must take his place between the star and the camera. This rule is, of course, subject to the development of the scene; but it will be noticed that, as a rule, the prominence of the star is usually emphasised through the means of physical proximity to the camera. In fact, contracts have been known to specify the minimum number of close-ups of the star which shall appear in each unit length of film. This is an obvious and usually inartistic method of securing the desired end. The close-up is a very valuable shot when correctly used; but it is most undesirable when introduced only for the purpose of emphasising the importance of the star. In fact, the personality of the star should be submerged in the personality of the character, and emphasis obtained through artistic principles.

We have seen scenes in which an assembly is parted, the actors taking their places at one side or the other of the stage, leaving an open path, at the extremity of which the star appears. In spite of the fact that the star is farther from the camera than any other actor, she is easily the most prominent figure upon the screen. Here we have two triangles whose principal bases are coincident with the sides of the frame, whose bodies are composed of the two opposed groups of actors, and whose apices mark the center of interest of the composition where the star is to appear. The reason for the success of this arrangement was once told to the writer: "When the mob separates that way, leaving

a path for the star to walk down, the audience knows that something is going to happen and they watch for it".

This explanation is partly true; but the fact is that the arrangement of the masses forms the simplest and strongest possible eye-path toward the center of interest, and the eyes of each spectator are led forcibly to the point of appearance, even before the star appears.

It may be asserted that these examples are evidence that artistic principles are known and applied; but that this is not true is attested by the fact that such examples are rather rare, and almost without exception occur in isolated instances. We are, therefore, justified in believing that such arrangements have been made because they are natural. The fact that art also follows natural law is ignored, and the productions in which such instances occur are not produced with consistent artistic structure.

So the amateur who aspires to success in the new photo-drama might well begin with line-studies, then continue with applied design and, finally proceed to the practical application of these elements in the "motion genre". What will be the reward? The artistic picture will then bear a striking resemblance to the present-day photoplay, whether professional or amateur. The casual observer will not notice any difference, perhaps; but there will be that feeling which causes us to sigh after a final scene and murmur, "*That* was a fine film!" This feeling will persist even though analysis of the story reveals a trite plot and stereotyped development. Then we give credit to the director, who, thank goodness, is now more often receiving credit from the spectator.

Perhaps it is significant that the excellence of the artistic photo-play depends upon direction, where the present production depends entirely too much upon the scenarioist, whether he be the original writer or the director who alters the scenario. For this reason the artistic form will appeal to the amateur producer who prefers to develop his photo-play through spontaneous direction with a bare skeleton script rather than to prepare and follow a complete scenario.

So much for a discussion of the art of the motion-picture. After all, these sketches may be meaningless—no doubt they have bored many of you; yet I am sure you will all agree that if they in the slightest degree stimulate a study of the technique of motion-pictures as a form of dynamic pictorial art, they shall have been not altogether purposeless. Next month we shall go on into the discussion of more practical branches of motion-picture photography.

Indoor Kinematography

Our winter was slow in coming, but it seems to have definitely arrived. The kinematographers a year ago and even more—two years ago—were braving the cold, making skating shots and filming other winter sports. Many more were projecting the summer's films in a warm room and longing for the warmth of summer again. This winter most of us will be making our home-films. The Thanksgiving dinner was no doubt filmed, with more or less success; but now let us make sure that the Christmas festivities will be fully successful.

The greatest essential in kinematography is the presence of enough light to properly affect the film. We must remember that the only light we are concerned with is the photographically active light which falls upon the film. This, we must remember, consists of the blue and violet rays, with a sprinkling of green, and perhaps a trifle of yellow, which pass through the lens. If we are to make films indoors, we must have an abundance of blue-white light, an adequate lens opening, or both.

With the recent developments in arc lighting-equipment there is no reason for the amateur not having all the light he wants. In fact, for those who do not like to use the arc, a remarkably efficient mazda light has been recently introduced. However, most of us will stick to that most efficient light-source, the electric arc. Last month we reviewed the Cameralite and the Traut Minima. These lights form the two ends of the home-lights, and now a third has been introduced which takes a place midway between the two. This is the Little Sunny arc, an eight-ampere arc which burns continuously and which gives a tremendous light-volume. It folds into a package slightly larger than 2 x 5 x 7. This light is provided with a stand of the folding type, so that the whole thing occupies less space and weighs less than a small camera and tripod. In the writer's hands this arc has proved surprisingly efficient, a single light supplying light for a full-speed exposure upon a semi-close-up. A companion piece to this arc is a reflector which gives a reflecting surface about 3 x 5 feet, yet which, with its stand, folds into a bundle about 2 x 2 x 20. Two of these lights and a reflector make up a very good amateur light-supply.

So we have, in addition to the heavier type of portable twin arc, the Cameralite, twin arc, about 10,000 to 12,000 candlepower, the Little Sunny single arc of about 8,000 to 9,000 candlepower, and the Minima of about 5,000 candlepower. These lamps are in high favor with all amateurs.

Where the wiring circuit will stand the drain of a twenty-ampere light, the lights known as the "double-range" arcs are extensively used. The limitation just mentioned, however, was responsible for the introduction of the three lights mentioned above, and a prominent manufacturer is responsible for the statement that practically every well-known manufacturer is now working on a model using ten amperes of current or less. Of the two-range lights, the Halldorson is an excellent example. This lamp is well built, strong, and dependable. It has the attractive appearance usually associated with the professional lamps made by this firm. The Gelb twin arc, the Perkins lamps, the Leoty, and others are of similar construction, differing in design and appearance. These lamps may be used in any home; for, should the wiring be too light for the full drain, the amperage may be reduced to ten. This sacrifices about two-thirds or more of the candlepower, but this loss is compensated by the 16,000 to 18,000 candlepower obtainable at full amperage. The choice of type will depend upon the locations in which the amateur expects to work.

An arc light consists of two rods of carbon, each of which is connected to one wire of an electric current. In one lead or wire is connected a resistance. This resistance acts as a safety-valve, allowing only enough current to flow to actuate the arc. Touching the arcs without this resistance would result in a direct short circuit, blowing the line fuses or melting the connecting wires.

When an electric current encounters any obstacle in its path—known as resistance—heat is developed. Carbon is highly resistant to heat, withstanding far more heat than most metals will stand without fusing. If the ends of the carbons are touched, the imperfect connection will cause heat to be generated, this heats the carbons and the surrounding air, the carbon rods are separated slowly, the air space between them being heated. This heated air allows the electric current to pass; but over increased resistance, generating more heat. So on until we reach the amount of separation

which is most efficient. The heat has now risen to such a degree that the ends of the carbon rods are incandescent. The extreme ends, or "craters"—so called due to the hollowed-out shape produced by the arc—are so dazzlingly white that one cannot look at them with the naked eye. This gives us a light of enormous actinic power at comparatively low electric consumption.

The light itself is rich in blue, violet, and ultra-violet light, the carbons used in photographic work having centers or "cores" especially compounded to give a light of this description.

Direct current gives the most satisfactory arc results, the light being brilliant, steady, and noiseless. On alternating current the brilliancy is slightly less, the light flickering slightly at times, but not so much as to be easily noticeable; and on alternating current the arc sings rather loudly. These are not really faults, as there is no real inconvenience. The only real objection to the arc is that the lamp must be "trimmed" periodically; that is, the carbons must be replaced, or adjusted.

The beginner in home-lighting should use the plain lighting. That is, the source of light should be placed in front of, at one side of, and slightly above the subject. The direction of light-fall should be about halfway between side and front and fifty per cent. higher than the subject; *i.e.*, seven and one-half feet for a five-foot subject.

The light upon one side will form heavy cast shadows on the opposite side of the figure. This harsh effect is relieved by placing a reflector in such a position that it will reflect the light upon this shaded portion, or a secondary light of lower power may be used to illuminate these shadows.

For the usual home scene, in which full-length figures are photographed, from 15,000 to 20,000 candlepower should be available as well as one or two reflectors. Remember that exposure is determined, not by the distance of the camera, but by the distance of the light from the subject. In exposure determination for interior work, the writer has found the Dremophot, recommended for use with the Filmo, and the Cinophot, a similar meter, to give very good results.

The space appears to be exhausted; so we shall have to leave the discussion of the incandescent equipment for the next issue.

Incandescent equipment of a type suited for amateur kinematography is a very recent introduction. In fact, the writer has not yet had opportunity to test any of these lights as yet. However, next month we shall consider them and their use.

The New Victor Camera

In 1923, the Victor Animatograph Company brought out one of the first sixteen-millimeter cameras to be used in this country. Before that, this company made and sold the 28-millimeter safety film-projectors; and for years they have been making and distributing lantern-slide projectors and slides. The 1923 model was a small, compact box operated by a hand-crank. This camera was widely used; and one of them in the writer's hands gave full satisfaction. But, with the development of the art, more refinements were demanded than this model afforded; and Mr. A. F. Victor began to design a camera which would meet every need of the amateur. In the Model 3, he has succeeded.

This new camera has so many features that instead of a table of specifications we will consider the camera as a whole, bringing out these features as we progress.

The camera, of course, takes the sub-standard sixteen-millimeter film in 100-foot rolls. The case is a perpendicular oval, supporting the film-spools one above the other, with a straight-line travel. At the front of the camera is a circular shutter-casing, and at the right-hand side is a motor case.

The finder is of the two-unit type, and is arranged to give an accurate field of view for any lens which may be used with the camera. This finder is placed immediately above the motor-case about the vertical center line of the camera.

The motor, as has been said, is in a detachable casing. It is of the latest double spring drive, giving unusually smooth operation. Three windings will expose a 100-foot roll of film. This is equivalent to eighty-five feet of normal film. The standard-gauge cameras of the automatic type expose from 45 to 55 feet of film per winding, giving more than 50% increase in favor of the new Victor. A feature of this motor is the fact that it starts and stops smoothly, silently, and at full speed. Due to the sliding engagement, there is no danger in tearing the film by starting even at supernormal speed. The camera, in operation, is free of any vibration due to this motor design.

The motor drives the camera at four speeds—single exposure, half speed, normal speed, and superspeed for making slow-motion pictures. The change from one speed to another is made instantly by turning the release-button until the arrow engraved upon its top points to the desired speed. In addition to this, the button may be set to "Lock" when the mechanism is locked to prevent accidental release and consequent loss of film.

The speed is absolutely uniform at all times, due to the action of the automatic speed-control. The motor is wound by a crank instead of a key. The motor may be locked in operating-position, allowing the operator to get into the picture if he so desires.

When unusual conditions make the use of a hand-crank desirable, the winding-crank may be connected with the drive and used to operate the camera in the orthodox style. This is a feature of great value to experimenters and scientists who wish to have absolute control of the camera at all times. This is a new feature in amateur cameras.

In loading, extreme care is not necessary in placing the film in the gate, as the camera is self-registering in this respect; and the film is forced to take its proper position. This prevents jamming and buckling which is encountered when the film is not properly located. Another feature is that the shutter is always closed when the camera is not in use. This prevents any possibility of fogging the film by carrying it for extended periods open to the sunlight through an open shutter.

A level is always visible in the finder, making it almost impossible to secure "down-hill" pictures, except by deliberate intent. Other exterior features are the film-meter, which requires no setting, yet which always indicates accurately the amount of unexposed film left in the camera, and the exposure-meter which is a built-in feature.

The camera is very convenient to carry and to use. The unusual carrying position is designed to protect the lens from injury, even when no carrying-case is used. As the camera is of all metal construction, it is not affected by climatic conditions. Its small size, 3¼ x 6 x 8, and its light weight, 4¾ pounds, make it possible to use the camera in one hand.

The lens-equipment supplied with the camera is either an F/3.5 or F/1.8 Velostigmat of 25-millimeter focus. The quality of the Velostigmats is unchal-

(*Continued on page 350*)

Glossary of Motion-Picture Terms

MOTION-PHOTOGRAPHY, like other arts, crafts, and sciences, has a language of its own. Many of the terms are unknown in other ways, many others are familiar to us; but have assumed an entirely new meaning. Due to the fact that these words are in constant use by writers upon this subject, as well as by the kinematographers themselves, it is necessary that both amateur and professional have a glossary for reference. With this in view we shall devote the next few pages of this work to this glossary:

Action—The events of a dramatic motion-picture; the development of the plot; the actions of the player. In studio-productions the command given by the director to begin enacting a scene.

Aërial Image—A light-image existing in space, and visible only from a restricted viewpoint.

Angle, camera—The field of view embraced by the lens. This field comes to an apex at the lens.

Angle shot—A shot of any given scene made from a position different from the preceding shot of the same scene.

Aperture—An opening. *Lens*, the opening in the iris-diaphragm. *Camera* or *Projector*, the rectangular opening in the film-gate through which light passes to or from the film.

Aperture-plate—The metal plate in which the camera or projector aperture is cut. A part of the film-gate.

Art-titles—Motion-picture titles which have some kind of decoration applied.

Artificial light—Any light not originating from the sun.

Axis, lens—A line passing through the center of a lens, perpendicular to its surface.

Back focus—The distance from the rearmost surface of a lens to the film.

Back light—The Rembrandt effect in which the strongest light falls upon the back of the head.

Barrel-distortion—A fault in lenses which causes the images of parallel lines to approach each other near their ends.

Base—The celluloid of the motion-picture film.

B. & H.—Bell & Howell, manufacturers of motion-picture cameras and equipment.

B. & L.—Bausch & Lomb, lens-manufacturers.

Binocular—A mask with overlapping circles used to represent a view seen through binoculars.

Claws—The metal fingers or pins which engage in the film-perforations to move it intermittently downward in the camera.

Claw—Slip-claw movement; an intermittent movement which slips upward across the film perforations, but engages like a ratchet and draws the film down with its downward movement. Will not work in reverse and is, therefore, seldom used.

Climax—The supreme moment in a photoplay, the culminating point to which all the action trends.

Close-Up—Anything made by the movie camera at a distance of four or five feet or less—used alone it generally means head and shoulders of actor; but may be used as: close-up of face, close-up of locket, close-up of notebook. Close-ups of small articles, letters, and telegrams are also called inserts.

Color—Anything which adds to the supposed character of a scene is "color" or "atmosphere". "Color" is a bit higher grade than "atmosphere". In an African desert-scene, camels would be "color"; real Arabs in native costume would also be "color"; but supers made up as Arabs would be simply "atmosphere".

Color-Screen—A ray-filter used before the camera-lens to get different tonal rendering of color-values.

Color-Filter—Same as color-screen.

Composition—Arrangement of objects in a scene according to art-principles.

Compo-Board—Composition-board—used extensively for building scenery and for many other purposes in studios.

Concave—Hollowed inwards.

Continuity—The story or scenario as ready for production. Continuity describes the business and action of the consecutive scenes.

Continuous Action—An uninterrupted sequence of action between characters.

Convex—Bulge out.

Contrast—1. In prints, is where the shadows are very black and dense and the whites very transparent and chalky.

2. Contrast is also used to indicate opposing emotions and conditions in dramatic action—poverty emphasises riches, hatred contrasts love.

Cooper Hewitt—The name of the inventor of the green tube lights used for soft lighting in most studios, and the name by which they are designated to distinguish them from other types of lights.

Crank—Command to begin turning the camera.
Cranking—Making the picture.
Crank-Speed—The speed at which the camera should be operated to get the desired effect.
Crank-Turner—An opprobious or sarcastic name for an indifferent cameraman.
Crêpe Hair—Artificial hair used by actors for building up beards, mustaches and shaggy eye-brows.
Crisis—A critical moment in a photoplay, but of less importance than the climax.
Cross Lines—Fine lines engraved on glass. Used to locate focal plane in microscopic focusing.
Cut—Stop grinding. Stop the action, end of the scene.
Cut-In—Any close-up or insert which is interpolated into a longer shot.
Cut-Back—Where two trains of action take place simultaneously, the secondary action is shown in cut-backs. For example, the girl is struggling with the villain, and far away the hero rides to the rescue. We see the girl struggling, then the cut-back to the hero riding furiously, then to the girl again and so on.
Cutting—Editing film.
Cutting the Negative—Matching the master negative up with the edited first print.
Darkroom—Room where film is developed. It is dark except for dim red lights.
Decorative Titles—Same as art-titles.
Definition—The sharpness or clearness with which lights are defined by a lens.
Density—The amount of opaque silver-deposit in a photographic image.
Depth—1. Pseudo stereoscopic effect.
2. The range within which objects are in focus in a photographic print.
Descriptive Title—A title used to describe something not shown in the action or to cover a time lapse.
Develop—Bringing up the latent photographic image.
Diaphragm—The iris-like mechanism in a photographic lens.
Director—The person who directs or stages a motion-picture production. He rehearses the actors in their parts, tells the cameraman when to shoot and when to stop; is, in short, the construction-boss in the building of a picture.
Discovered—A term used to show that a character is present in a scene at the time it starts.

Biograph—Old name for motion-pictures. An old producing company.
Bleeding—Oozing of color in tinting.
Buckling—Bending of film due to heat which prevents it from riding through the camera-gate properly.
Business—Definite bit of action. "Business of making love", for example.
Calibrate—To engrave or otherwise mark a scale upon an adjustable mechanism. Usually to engrave a distance-scale upon a focusing-mount.
Cam—An irregularly shaped metal device which actuates the camera intermittent mechanism.
Camera—The mechanism used in exposing motion-picture film.
Cameralite—A very compact arc-light, resembling a roll-film camera in appearance, and used for making amateur and commercial motion-pictures.
Caption—Subtitle.
Carbons—Carbon-rods used in arc-lights.
Carboy—Large glass bottle for solution or acids.
Cartoon—Often applied indiscriminately to any kind of animated drawing or diagram.
Celluloid—1, film base; 2, in cartoon-work any drawing on a transparent base is a celluloid or a "cell".
Changing-Bag—A light-tight cloth-bag with armlets in which plates or films may be changed in the open.
Characters—The fictitious persons whose actions make the story of a scenario or play.
Chart—1. In elaborate trick-work a graph or chart is sometimes used as a guide in matching exposures.
2. A card with geometrical areas of black and white for easy focusing and for testing lenses.
3. A chart may be any table of figures for quick and ready reference for focusing, timing exposure, mixing solutions, printing negatives, etc.
Chemical Rays—Actinic light.
Chiaro-oscuro—Aërial perspective.
Cinching Up—Tightening a roll of film by holding the center and pulling on the outer end. A good way to scratch film and make "rain" marks.
Cinophot—A very precise and scientifically designed exposure-meter.
Circle of Confusion—The round image of a point of light not in focus.
Circle in—Same as iris in.
Circle out—Same as iris out.

THE MONTH IN APPLIED PHOTOGRAPHY

C. B. NEBLETTE, A.R.P.S.
Division of Photography, A.M., College of Texas

Photographic Society of France Honors Dr. Eder

It is gratifying to see that the strife and rancor engendered by the late war is being gradually replaced by a more temperate attitude and that the scientists of an allied country which suffered greatly from the ravages of war are willing to bestow on one of their late opponents a testimonial of their appreciation of services in the cause of science. The Societé Française de Photographie recently announced the award of its Medaille Peligot to Dr. Joseph Maria Eder of Vienna. For Dr. Eder this is just another of a long list of honors and awards; and, but for the fact that it is awarded by the scientists of a country which was but a few years ago at war with his native land, it would excite no especial comment. It speaks volumes for the liberality of French scientists and their determination to recognise merit wherever it may be found that they have awarded one of their highest honors in the particular field of photography to a representative of a country with which they were at war only a few short years ago.

Dr. Eder's place is well established not only in Europe but among those familiar with the science of photography everywhere; and, except for the circumstances stated, the award of the Medaille Peligot comes as no surprise. Born in 1855, he organised in 1888 the National Institute for Instruction and Research in the Graphic Arts, at Vienna. This is undoubtedly the most outstanding school of photography in the world and was under the direction of Dr. Eder until 1922, when he retired. He was at the same time Professor of Photography in the Technischen Hochschule (Technical High School) in Vienna and a member of many scientific societies at home and abroad. To photographic scientists his name is familiar as the author of the huge treatise, Ausfuhrliches Handbuch der Photographie (Complete Handbook of Photography), his History of Photochemistry and Photography and the annual yearbook, Jahrbuch fur Photographie und Reproductionstechnik, and for the large number of papers covering practically every field of photographic science with which his name is associated.

Spectrography of the Light of the Firefly

Some wit once remarked that one thing he could never understand was the reason that the firefly carried his headlight behind. It seemed that Nature had been unthoughtful, to say the least. But if Nature did not provide the firefly with a headlight to light his path, it did provide him with a source of light unlike all the sources of light which man can produce, and one the true nature of which yet remains a mystery to science. Not only would we, as a matter of pure curiosity, like to know how the firefly produces the light which reveals his presence, but because in the secret of the light of the firefly lies the source of a new and more efficient means of producing light than any means now known to man.

For even though we have made immense strides in the science of illumination since the days of our grandparents, when the tallow-candle was the universal source of light, the best of our modern electric sources are relatively inefficient. For every dollar's worth of electricity which we use, we obtain only about five or ten cents worth of light. All of the rest is spent in the generation of heat-radiations and in the production of light-waves in the infra-red or ultra-violet where they are invisible to the eye. With us, light is inseparable from heat; but the firefly produces light without heat, or what science terms cold light. The firefly, if dependent upon the means which man employs for the production of light, would have to carry around a cooling system to keep from drying up!

We do not yet know why the light of the firefly is confined to a comparatively narrow portion of the spectrum, nor how it is that it can produce light in one part of the spectrum; but when we want light we must produce practically the whole spectrum from infra-red to ultra-violet. However, we have determined the range of spectral energy emitted by the firefly, the luminous crustacean, Cypridina, and luminous wood, or the so-called "fox fire".

Owing to the low intensity, it is impossible to determine the spectral energy of the light emitted by these subjects by visual spectroscopy, or by the spectroscope in conjunction with the thermopile; but by giving long exposures, it is possible to photograph the spectrum; and this has been done by Dr. W. W. Coblentz of the United States Bureau of Standards. The firefly was fixed to a support directly in front of the slit of the spectrograph, and an exposure of thirty minutes given. The resulting spectrogram shows that the light emitted by the firefly is contained in a very narrow spectral band extending from about .50μ to .65μ. With luminous wood much longer exposures were necessary, but a fairly good result was obtained with seventy hours' exposure; the resulting spectrogram showing a range of spectral energy in very nearly the same position as that of the firefly but a trifle broader, extending from .48μ to .68μ.

Of course, such investigations do not enable us to determine how the firefly is able to produce light without heat. We know that the matter is not one of selective transmission by the outer skin, and apparently they are able to produce light directly without heat and within a narrow range of wave-lengths. When, by the aid of such studies as that outlined, we have determined how this is accomplished, a remarkable step will have been made in the science of illumination.

Photography Cuts Drafting Expense for Bell System

In the *Bell Telephone Record* for September, 1927, there is a very interesting article by Mr. W. L. Heard which shows how photography may be used to lessen the expenses of the drafting department of a large engineering works.

In connection with the drafting work of the Bell System, it is often necessary to portray certain objects in three dimensions. In making perspective drawings the amount of drafting time is considerable and the work exacting, especially if the subject is at all intri-

cate, and the chances of error in the finished drawing are not inconsiderable. To reduce this expense, the department has worked out a method with several points of novelty which has resulted in a material reduction in drafting expenses.

The apparatus is first photographed, and over the resulting print is laid a sheet of transparent celluloid. Upon this the essential features of the apparatus is then traced, all unessential and confusing features being eliminated and important levers, buttons, and adjustments strengthened so as to focus attention on the important details. If the tracing thus made is of the proper size, the zinc printing-block (from which the prints are made) is made directly from this tracing. However, if the tracing is not of the proper size for the printing-block, as is usually the case, a photostat is made of the celluloid tracing and from this is made on tracing-cloth a tracing of the required size. On this tracing are added any further figures, numbers, or tracers which may be necessary; and the zinc printing-block is made directly from this tracing. From this printing-block any required number of prints may be made; and where comparatively large numbers are required, the cost is much lower than if blue-prints or other photographic processes are employed.

Photographing Part of Maine from the Air

WITHIN a period of nine flying days and in a total of thirteen flights, eighteen quadrangles, approximating 3,800 square miles of territory in the extreme northeastern portion of Maine, were photographed by an aërial photographic detachment, consisting of Lieut. Herbert K. Baisley, pilot, and Technical Sergeant Stolte, photographer, of the Army Air Corps.

The base of operations was established on a hayfield, four miles south of the town of Van Buren, Me., a very pretty piece of country, according to Lieutenant Baisley. The field was hilly and liberally sprinkled with rock piles. It was necessary to clear a space sufficient for landing and taking off.

Lieutenant Baisley stated that there is a better landing-field at Presque Isle and in the vicinity of Caribou. The eastern portion of the tract photographed is cultivated and rolled, many farms and roads being observed. The western portion, however, is practically impassable in the summer time—virtually a wilderness. The State of Maine maintains a forestry service in this section, lookouts being posted on several mountains for the purpose of spotting forest fires.

The airmen performed all the necessary work incident to servicing their plane, a D-H. photographic ship. No difficulty was experienced in making the necessary repairs, all being of a minor nature, and keeping the plane in flying trim. All necessary supplies were sent up from Mitchell Field, N.Y. In the absence of shelter for the plane, it was necessary to stake it to the ground, and a piece of canvas was borrowed from a farmer to cover the motor.

It required thirty-four and one-half actual flying hours to complete the photographic mission. On the days flying-operations were conducted, the airmen worked until about ten o'clock at night. A number of ground-parties were observed working on the particular territory which was photographed; and, in subsequent conversation with these Government surveyors, they expressed the view that the aërial photographs would prove of great value to them. The Geological Survey has quite an extensive surveying-program for the State of Maine.

Altogether the airmen were absent from their home-station, Scott Field, Ill., for a period of six weeks. Lieutenant Baisley stated that both he and Sergeant Stolte greatly enjoyed their stay in the Maine woods; that the people were very hospitable and evinced a great deal of interest in the airplane. "This is one locality in the United States", Lieutenant Baisley stated, "where the French language is used almost to the exclusion of the English language".

Aërial Photographic Work on Pacific Coast

THE Commanding Officer of the U. S. Naval Station, Sand Point, Seattle, Wash., recently forwarded the following communication to the Commanding Officer of Crissy Field:

"It is desired to express the appreciation of this Command for the two excellent aërial photographic mosaics made by Lieutenant Taylor, of the 15th Photo Section, attached to Crissy Field, and forwarded through Lieut. T. J. Koenig, Air Corps Reserve Unit at Sand Point.

"These photographs have been very valuable in planning the development of Sand Point, and it is planned to send one to the Bureau of Aëronautics, Navy Department, Washington, D.C., in connection with recommendations for the future additions to the landing field."

THE 15th Photo Section completed during August a 25-square mile mosaic of San Joaquin Valley for the Engineers of the Second District in connection with a project to deepen a channel of the San Joaquin River for shipping purposes.

Aërial Photography for Study of Plant-Diseases

A FEW weeks ago the writer was requested by the Division of Plant Pathology of the Texas Agricultural Experiment Station to make for them a number of aërial views of cotton fields, known to be infected with root-rot, in order to determine whether or not the existence of root-rot in cotton might be shown by photographs made from the air. It was felt by those engaged in the investigation of the disease that if photographs could be made from the air which would show the existence of areas infected with root-rot, much might be learned regarding its distribution.

The areas selected by the Division of Plant Pathology were in the vicinity of Temple, Tex., in what is termed the blackland district of the state, because of the black, waxy nature of the soil. It was known from the beginning that to obtain photographs showing the existence of the infected plants would involve color-separation so that comparatively deep filters and low altitudes would be required. A number of experiments were made, and it was found that the use of a Wratten G-filter, with a Carl Zeiss Tessar of 9-inch focal length, at an altitude of about three hundred feet, brought out the spots of cotton infected with the disease quite plainly. The appearance of fields of cotton infected with root-rot when photographed under these conditions was quite striking; the infected spots standing out from the remainder of the cotton in a distinct manner which may be likened to the face of a person with measles or small-pox.

This disease is one which is responsible for untold loss to the cotton growers of the South, causing damage estimated at from twenty to as high as eighty per cent. in the infected areas. Despite the ravages of the disease, comparatively little is known regarding its nature and manner of distribution; so that every bit of evidence which can be obtained by any means whatever must be accumulated and studied in order that methods may be developed for combating the disease.

LONDON LETTER

CARINE AND WILL CADBY

THE London Salon has altered its character this year. The first surprise on entering the gallery is the great number of exhibits—to be exact, 447. The walls are far more closely covered than usual, and many of the pictures are placed so near the floor that one has to be athletic and get down on one's haunches, or apparently devotional, and kneel, to look at them properly. And many so hung are well worth looking at and are by Japanese artists.

And this brings us to the novel interest of this year's show, the Japanese element, which is responsible for nearly a quarter of the exhibits; and one wonders, in passing, why so large a proportion are so badly placed. These Japanese photographs at once attract the attention. They cover a wide range of subjects: figure studies; portraits; atmospheric effects, mist, snow, cloud, and rain; and delicate designs composed from the most unpromising materials, such as cardboard boxes piled one upon another.

We have said they immediately arrested the attention; and the reason lay in the sharply marked difference of treatment when compared with similar subjects by Europeans or Americans. There was a strange and peculiar delicacy of touch in printing, and of thought in composition so far removed from our natural treatment of kindred themes. We do not, of course, mean that Europeans and Americans are not capable of the most delicate work; but there was a difference of kind; and one knew at a glance that these pictures expressed the thoughts of an entirely foreign race. It was rather like discovering a covey of strange and unknown birds on a country ramble. Another inspiriting point was the absence of "makeweights", for there was practically no poor stuff among the Japanese exhibits. And so we hailed this innovation with pleasure and hope it will be continued in future years, for we have much to learn from their traditions and conventions in art that seem to exert such a subtle influence on their work.

Thanks to these Japanese prints the Salon is, we think, better than usual and more diversified. The old favorites are all represented, mostly by the sort of work the public now expects of them. There are waves, storms, and tempests from F. J. Mortimer, quite up to his excellence of standard; a lovely group of mystical landscapes by Misonne,—and admirable children's portraits by Herbert Lambert. Lady Diana Duff Cooper has posed for Hugh Cecil, and he has made of her one of his characteristic feminine studies. Alex. Keighley has four prints hung in what used to be considered the place of honor at the top of the gallery as near like work of his we remember many years back as can be, both in printing and subjects. "Tell me the old, old story", is, we suppose, the mandate of the public addressed to its favorites; and it is only the lucky unknown workers who dare explore.

There are several prints of Royalties that photographically do not call for special notice. Photographing celebrities is always rather harrowing work, for disturbing elements are bound to assert themselves; and the photographer cannot, as a rule, devote his undivided attention to the making of his picture. Their R. H. the Duke and Duchess of York are by Bertram Park, and the little Princess Elizabeth—a pleasing portrait—and a group study of the Duchess of York and Princess Elizabeth, by Marcus Adams. Bertram Park also sends an excellent portrait of the late Ward Muir that vividly recalls the genial, humorous, and whimsical personality we all miss this year at the exhibition.

"Though we travel the world over to find the beautiful, we must carry it with us or we shall find it not", quotes Mr. F. C. Tilney, in his new publication, *The Pictorial Work of the Royal Photographic Society, 1927*; and who should find the beautiful if not Mr. Tilney, who is not only quickest to recognise it, but also to share?

This is the same publication which appeared last year under the title of *The Pictorial Annual of the Royal Photographic Society*, and we are glad to welcome it again, for over here we are woefully short of good photographic publications. We hope it will grow and flourish as a hardy annual; it is both decorative and useful, and one need have no more bother thinking of an Xmas gift for a budding photographer!

In a way, of course, it is a rival to Mr. Mortimer's *Photographs of the Year*. It has the advantage, however, of appearing at the exact right moment, when the two exhibitions open and everyone is keen and interested; but in his publication, Mr. Mortimer has the unrestricted choice from both exhibitions, while Mr. Tilney only draws on the R. P. S.

There are forty-eight pages of letter press, all good reading; for Mr. Tilney is never dull. Sixty illustrations—all excellent reproductions, over which one can see personal care and interest has been taken—and two frontispieces. There are also two prefaces; and we wondered why. Certainly one is called Introduction and then there is an Epilogue as well. We believe it is Mr. Tilney's love of his reader—he wants to chat with him and explain things, and just a single preface is not enough. It seems as if Mr. Tilney were just driven to write the Introduction to back-answer a critic, who had back-answered some of Mr. Tilney's remarks in last year's Annual. Sometimes one wishes that these writers' brains were not so active and argumentative, or that their memories were not so retentive. Last year is a long while ago. But we have a whole-hearted admiration for Mr. Tilney, when once he gets down to his work. His criticism is excellent, searching, and illuminating; his style peaceful and vivacious, and no one in his writings is more stimulating to photographers.

In studying these sixty-two beautifully reproduced examples, we could not help wishing that all of them were as good as some. But Mr. Tilney is gentle, and as he reminds us in his Epilogue, "Those I selected for reproduction were those I liked"; and if we do not see eye to eye with him, it is yet interesting to look up his text and read how he has treated these frail examples. And it is here where he is so clever, for we find he has observed what we have missed; he has seen promise and intention, and the poor example has produced an entertaining and constructive bit of criticism.

No wonder this Annual has become a kind of textbook to amateurs who aspire to pictorial photography—and a very entertaining one it is. We hear that copies of it are now being given as an award in place of the time-honored certificate of merit at some of the Competitive Exhibitions.

HERE, THERE AND EVERYWHERE

To ensure publication, announcements and reports should be sent in not later than the 5th of the preceding month.

A Merry Christmas and a Happy New Year!

IT is with sincerity and a deep appreciation of our many readers, subscribers, and advertisers that we extend to one and all the wish for a Merry Christmas and a Very Happy and Prosperous New Year. We hope that others will show them the same friendly interest and goodwill which they have shown us; and may they be as happy and thankful as we are for these expressions of goodwill and friendship.

PHOTO-ERA PUBLISHING COMPANY, INC.

Popular Course in Coloring Resumed

WE are very glad to inform our readers that the excellent course in coloring given last year by the Japanese Water Color Company, Peerless Building, Diamond Place, Rochester, N. Y., is to be resumed. Due to the personal co-operation and kindness of Mr. Nicholson, we have received, and examined at length, the complete course as it issued to students who enroll for instruction. It is clear, interesting, and practical in every detail. In fact, had we the time, we would like to take the course ourselves because of the pleasure it would give us. It is of interest to note that all the portrait photographs included in the course were furnished on paper supplied by the Defender Photo Supply Company, Inc., and the Haloid Company. These two well-known brands of paper were selected after careful tests and comparison with many other papers. These two seemed best adapted to color, although other papers will be found satisfactory. We hope that our readers will take advantage of this opportunity to learn how to color their own prints and enlargements so that they will be technically and artistically correct.

P. A. of A. Convention at Louisville, Ky.

AT a recent meeting of the Board of Directors of the Photographers Association of America held in Louisville, Ky., it was decided to hold the next annual convention in that city, March 27, 28, 29, and 30, 1928. After a careful canvass of State Chairmen and the Manufacturers' Bureau it was decided to hold the annual convention in the spring-months of the year instead of during the summer-months as heretofore. It is believed that this change of date will result in larger attendance.

The "Long Island Auto Courier" Photo-Contest

A SPECIAL photographic contest is now being conducted by the *Long Island Auto Courier*, 1263 Bedford Avenue, Brooklyn, N.Y. This publication is the official monthly magazine of the Long Island Automobile Club. The object of the contest is to encourage members to make pictures on their automobile trips. We have been glad to co-operate in this contest, and we suggest that our readers obtain further particulars by writing at once to the Editor, Mr. Richardson Webster, who will be very glad to answer inquiries.

Union Camera Club—Boston

EXECUTIVE COMMITTEE. The meeting was called to order October 4, 1927, at 6.30 P.M. by President Howard. There were present Messrs. Blanchard, Howard, Knopp, Lewis, Osborne, Palmer, Purssell, Seelig, and Sherman. The secretary's and treasurer's reports were read and accepted. Mr. Purssell of the House Committee reported that a reflector was being made instead of purchased, thereby saving the Club twenty-five dollars. He also stated that, aided by Mr. Osborne, he had put up hangers on the film-drying racks.

Mr. Seelig of the Exhibition Committee brought up the matter of prizes to be given to the winner of the monthly competitions. Motion was made, seconded, and passed to accept Mr. Craske's offer to design a plaque, to be given to the winner of the greatest number of prizes in the monthly competitions during the year.

The meeting adjourned at 6 P.M.

Regular Monthly Meeting, October 4, 1927. The meeting was called to order by President Howard at 8.00 P.M. There were thirty-one members present. The secretary's and treasurer's reports were read and accepted.

Mr. Seelig of the Exhibition Committee spoke of the new plaque which is to be given to the winner of the greatest number of monthly competitions during the year.

Mr. Lewis of the Outing Committee stated that the next outing would be at the Blue Hills.

Mr. Osborne reported to the Club that Mr. Wilfred A. French was ill and had been taken to the Deaconess Hospital. He told the Club of the work Mr. French was doing in forming the nucleus of a photographic museum for the Club. Upon a motion by Mr. Almy, seconded by Mr. Fraprie, it was voted that the secretary send flowers and a letter to Mr. French in appreciation of his good work for the Club and as an expression of sympathy.

Mr. Almy moved that Article V, Section III, of the By-Laws be amended to read as follows:

Any member suspended in accordance with the provisions of Section III may be reinstated by the payment of arrearages within three months after suspension. The motion was duly seconded.

The business-meeting adjourned at 8.25 P.M.

Brooklyn Institute—Department of Photography

THE Department of Photography of the Brooklyn Institute and some of its friends, to the number of 175, listened to a fine lecture by Nicholas Haz, A.R.P.S., October 6, at the Institute. Mr. Haz talked on "Rules in Art, and Their Application in Studio Portraits", and illustrated his points with diagrams and many slides. He also demonstrated lighting-effects on still and living models, and made his lecture one of the most interesting the club has ever enjoyed. Mr. Haz and Mr. Greenberg will alternate in conducting the new class, which opened its sessions October 13.

The calendar of the year's events has been printed so

members may look forward to the treats to come and arrange other engagements so as not to interfere therewith. Copies of this calendar, which may well serve as a model for other camera clubs, may be had from the chairman of the publicity committee, Samuel P. Ward, Department of Photography, Academy of Music, Brooklyn, N.Y.

A Letter from Mr. F. Morris Steadman

DEAR MR. BEARDSLEY:

I can't resist the temptation to reply immediately to your kind letter of October 5. I have in mind especially the importance of what you say regarding the schools and photography.

If we could question the first hundred individuals that pass a certain corner on any city-street and ask them to guess the width of the street, not one would fail to make a guess. In this country, feet or yards would be used, in most other countries, meters. These units are taught in the public schools.

If we asked these same individuals what the actinicity or photographic brightness of the corner building was, not one would comprehend what we were after. The reason is that no unit of actinicity is taught in the schools.

How shall *any* value be understood by the people, while no unit exists for the measurement of that value, and while the schools, therefore, cannot teach it?

If we arrange two straight lines of equal length to meet at an acute angle and then separate the outer ends of these lines enough to make them into a straight line, we will make the angle grow from a small one to one of 180 degrees. The unit of this angle is the degree, and it is taught in all the text-books of that subject.

If we place a dot on a plane surface and carry this dot toward any other surface—whether light-source or not—until it touches that surface, we will have carried the solid angle from some small dimension to that of a hemisphere. Solid angle is the hemispheric dimension, just as angle is the dimension of the circle. Now, although intensity varies directly with, and is the result of, the solid angle that a light-source occupies relative to a point that it illuminates, there is no popular unit of solid angle, and this fundamental dimension cannot therefore be taught in the schools.

Although there is every reason that photography be taught in the schools, as it soon must be taught, it is "something" to ask for the introduction of this study there, when its simplest fundamental values, of solid angle and surface actinicity, are without physical units for their measurement. The situation would be identical with that of asking that architecture be taught without units of distance.

But these new physical units, although they are the very foundation of photographic practice, are in truth a part of *pure physics* and should be taught as such in the schools. They are for the computation of intensity (photographic) under all conceivable circumstances, with flames, openings, etc., in common with photography.

Until such units are incorporated in the text-books, photography has no mathematical foundation on which can be based a system of study. The latest we have in certain practical instruction books are such terms as "sunny bright", "cloudy bright", "cloudy dull", etc. We need to dignify our photographic intelligence.

Yours for progress,

F. MORRIS STEADMAN.

For Those Long Winter-Evenings

THANKS to the Eastman Kodak Company, Bell & Howell, Victor Animatograph Company, The DeVry Corporation and several dealers, the owners of 16-mm. motion-picture projectors are to have a busy and a thoroughly enjoyable winter. It matters little what the individual taste may be, there are subjects to please all; and these reels may be bought outright or rented, as may be preferred. What a treat for the children, the old folks, the shut-ins, and the tired business man! Thrilling dramas, comedies, scenics, educational subjects, and personal motion-pictures are available in abundance. We suggest that our readers write for lists of subjects, and plan a series of at-home entertainments for young and old during the long winter evenings.

Fifteenth Annual Pittsburgh Salon

IT is not too early to make preparation to send prints to the Fifteenth Annual Pittsburgh Salon of Photographic Art to be held March 17 to April 15, inclusive, 1928, under the auspices of the Photographic Section of the Academy of Science and Art, at the Art Galleries of the Carnegie Institute. The last day for receiving prints, from overseas, February 4; from the United States, February 18. Full particulars and entry-forms may be obtained from B. H. Chatto, secretary, 1300 Milton Avenue, Pittsburgh, Penn.

Tired?

"JUST ONE MORE ROUND", is one of the best-known phrases in Americana. To the loser it means hope, to the cartoonist it means a new idea, and for many a wife it means another hour of sentry duty.

To the doctor, however, it means "fatigue" and the many diseases to which it opens the way, such as heart, kidney and nervous diseases, chronic digestive disturbances, and tuberculosis. Curiously enough, the most terrible of these diseases is the one that may be cured most readily, if it is discovered in time. It is tuberculosis.

The National Tuberculosis Association, which has been combating this disease for many years, says that fatigue is the entering wedge in practically every

case. The fatigued body has a greatly reduced resistance to diseases in general; but to tuberculosis in particular, because nearly everyone carries tubercle bacilli about in his body in a dormant state. The deadly germs await only the opportunity to become active; so a chronically tired person is a victim.

Fatigue also has its mental aspect, for the exhausted worker is very likely to become the negligent father who has little will-power or energy left to interest himself in the details of family-life and to maintain standards of conduct which make for decent home-life. A lowered standard of living, which is bound to follow, is conducive to disease, so that it is not uncommon for

tuberculosis workers to find, in such a sub-standard family, that the father has an active case of tuberculosis, and several of the children have contracted it from him. A single such family, if they remained undiscovered, could infect the entire community in which they reside, merely by chance contacts made during a single working-day—at the factory, in school on street-cars or buses, in stores, theaters, movies, even walking along the street—all because one man carelessly let fatigue get the better of him.

Tuberculosis workers, in seeking out such families—and there are an astounding number throughout the United States—are protecting the entire community. The local tuberculosis association for which they work is a voluntary, unofficial organisation supported by the sale of Christmas seals each December.

The morals are two: Avoid fatigue all year around; and, buy Christmas seals in December.

A. SCHAEFFER, JR.

New Edition, "Motion-Picture Photography"

THE increased interest in amateur and professional motion-pictures made a new edition of Carl L. Gregory's "Motion-Picture Photography" necessary. The appearance of the new edition is excellent, and the contents has been brought up to date. Mr. Gregory is a Fellow of the Royal Photographic Society and well-known as a motion-picture technician and cameraman. Descriptive matter may be obtained from the Falk Publishing Company, 10 West 33rd Street, New York City.

For Your 16-mm. Library

THOSE of our readers who have 16-mm. projectors will be looking for new and interesting subjects during the winter months. Among the many excellent releases which are now being supplied by various manufacturers and dealers, we believe that our readers will be glad to obtain the latest list of subjects recently produced by Ernest M. Reynolds, 165 East 191st Street, New York City. Descriptive matter will gladly be sent to those who are interested.

Lenses, Tripods, and Other Good Things

SEVERAL months ago we obtained a Kawee camera in the 2¼ x 3¼ size, fitted with a Carl Zeiss Tessar F/4.5 lens, Compur shutter and a Ramstein filter. We told Mr. Burleigh Brooks of 136 Liberty Street, New York City, that in due course we would show him what that little Kawee could do. We promised to send prints and even to write an article illustrated with some of the pictures. We have not done either yet; and probably Mr. Brooks thinks we have forgotten all about it. No, indeed. The trouble is that we have been having such good luck with it, and the demand for extra prints and enlargements has been such that we simply have not had time to show Mr. Brooks what a good camera the Kawee really is. We have illustrated a Chamber of Commerce booklet with it; we have just made twenty-five enlargements for the owner of a beautiful summer-home; we have recently finished an illustrated article for a cotemporary magazine on motor-boating and are now busy making up some three hundred Christmas cards from a selection of Kawee negatives. Quite true we have not proved to Mr. Brooks that the camera is any good, because we have been too busy taking care of the results of the good negatives we have made with it. We hope Mr. Brooks will pardon our delay.

Incidentally, we have just received a very attractive Schneider lens catalog all about the Tele-Xenar and other products of this well-known optical firm. Then, too, we are glad to call attention to the new Triax Tripod which is said to be guaranteed to hold one hundred pounds without wobbling. Besides this Mr. Brooks has a number of other photographic accessories which are of immediate interest. We know that our readers will be glad to make the acquaintance of Mr. Brooks by mail or in person.

The New Victor Camera

(*Continued from page 342*)

lenged, giving, as they do, results which are in every way comparable to those given by foreign or domestic made lenses. The camera has the standard lens-socket, and will take the usual lenses from one to six-inch focus and from F/1.5 down in speed, as supplied for other sub-standard cameras. No special fitting is needed.

The usual accessories may be used with the Victor camera as with other sub-standard cameras.

The Victor camera supplies in one model those features which heretofore have been obtainable only by using two or more cameras. It is noteworthy that this is the first camera of any type or size to incorporate both slow motion and normal speed in a single model without alteration or addition. As the great value of slow motion, and its general desirability is becoming more and more strongly impressed upon the amateur, this feature will no doubt appeal strongly to most amateur kinematographers.

In trying one of these splendid instruments, the editor was pleasantly surprised at the liquid smoothness of the action, and the general all-around satisfactory manner in which the camera performed its duties. At half speed or at superspeed, the same evidence of quiet strength was given. In fact, it is seldom that a mechanism comes into our hands which is so thoroughly pleasing in both appearance and operation.

Karl A. Barleben Joins Staff of New York Institute of Photography

THE New York Institute of Photography, following its usual policy of securing recognised experts as members of its staff, recently obtained the services of Mr. Karl A. Barleben, Jr. Mr. Barleben has charge of instruction in motion-picture photography in the resident school of the Institute.

He is well known throughout the country as the motion-picture editor of *American Photography*. He is also a member of the Society of Motion-Picture Engineers, and is widely recognised as an authority on both the making and projection of motion-pictures.

No other professional school in the United States has, or has had, so many widely recognised authorities upon its staff as has the New York Institute of Photography. The staff and advisory board of this Institute are composed of men each of whom is widely known and recognised as an authority and a leader in his particular field. Free information about its resident or correspondence course will be sent to anyone addressing the New York Institute of Photography, 10 W. 33d Street, New York City.

The Red Cross Asks for Five Million Members

FOLLOWING closely the announcement that the American Red Cross will call for a membership increased to five million for the coming year, the Eleventh Annual Roll Call, from Armistice Day, November 11, to Thanksgiving, November 24, was launched throughout the United States, during which new members were enrolled.

The appeal for this augmented membership is based on the realisation that demands on all branches of Red Cross service are growing with each year. For several years the membership in the Red Cross has numbered a little more than 3,000,000 adults. In the past fiscal year alone, this membership backing up the National and Chapter organisations and forming a part of its branches, bore the brunt of relief work in seventy-seven major disasters within their own country, while aid was extended through the National Organisation in twenty disasters in foreign lands.

In a single disaster, the Mississippi flood, this relatively small organisation, without other machinery than their own forces, raised from public subscription all over the nation, with foreign donations also, a relief fund of approximately $17,000,000 for the flood victims. Counting the effort involved in the relief task following the Florida storm, which was included in the past year's operations, $20,000,000 was raised, and a total of at least 650,000 people were assisted.

While the gigantic Mississippi flood relief was in progress, the Red Cross extended assistance in fourteen other disasters elsewhere, in the meantime continuing to operate its vital all-year-around services such as its obligations to the disabled veterans of the World War, other veterans, to the men still in the military and naval forces at home or on foreign service; its great health program, and similar activities.

Commenting upon the need for five million members in the Red Cross, Chairman John Barton Payne said in his report:

"We are obliged to draw annually upon our reserves, and the demands upon us increase each year. Our Roll Call funds should meet our normal needs and add something to our reserves for the great disasters. We must have a large reserve. No one can tell when a situation may arise when this reserve will be essential to the lives of thousands. The Red Cross cannot wait to raise funds. Action prompt, instant, is its life. Instant action means the lives of many. It must be strong, it must be ready; this means a large reserve."

Members are enrolled in the Red Cross through the local Chapters of the organisation. These Chapters are the local branches of the organisation, and are usually the first to get in action in time of stress. Many Chapters have a standing plan in which the municipalities collaborate, under which civic authorities and the citizenry, through their Red Cross Chapter, can go to work at once in time of disaster or other emergencies.

Distinguishing Colors for Du Pont 16-mm. Film

COLOR-HARMONIES, each with a distinctive meaning have been adopted by the Du Pont Pathé Film Manufacturing Corporation for wrapping their 16-millimeter film. The material used is transparent Cellophane, and the meaning of the colors is as follows:

Green—16-mm. safety negative—negative when exposed is returnable to the manufacturer to be developed. A positive print is then made from the negative, and both negative and positive returned to the user.

Red—16-mm. safety reversal negative—after this film is exposed, it is to be returned to the manufacturer to be developed by their reversal process and returned to the user.

Lavender—16-mm. safety negative sold to users without processing-charges included—it is for users who prefer to do their own developing.

United States Civil Service Examinations

THE United States Civil Service Commission announces the following open competitive examinations: Photographer, Wet Plate, $1,680; Photographer, Dry Plate, $1,680; Assistant Photographer, Wet Plate, $1,500; Assistant Photographer, Dry Plate, $1,500 and Junior Photographer, $1,320.

Applications for these positions must be on file with the Civil Service Commission at Washington, D.C., not later than December 3. The date for assembling of competitors will be stated on their admission cards, and will be about ten days after the close of receipt of applications.

The examinations are to fill vacancies in the Federal classified service throughout the United States, including the Departmental Service at Washington, D.C.

The entrance salaries in the District of Columbia are indicated above. A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. For appointment to the field service the entrance salaries will be approximately the same.

Competitors will be rated on practical questions pertaining to the theory and practice of the photographic art, and their education and experience.

Full information may be obtained from the United States Civil Service Commission, Washington, D.C., or the secretary of the United States Civil Service Board of Examiners at the post-office or customhouse in any city.

Blue—16-mm. positive film for sale to photographic dealers.

Green—portrait film—size 8 x 10—each carton holding one dozen films.

The 16-mm. motion-picture film is put up in 100-foot rolls. A plain printed cardboard carton is used in each case, and the package wrapped by hand.

Its plan is, the company states, to provide, by this wrapping, a striking, distinctive package which can be quickly recognised on the dealer's shelves. The appearance of the package is also an inducement to the dealer to use it for window-display. The company also believes that the slight additional expense incurred by the use of this wrapping is justified by the satisfactory reaction of its trade.

"Handbook of Motion-Picture Photography"

JUST as we went to press we received a copy of Herbert C. McKay's latest contribution to kinematographic literature, "The Handbook of Motion-Picture Photography". Time was too limited to allow us to give it the usual review in this issue. However, in the January number we shall tell our readers more about it. Suffice it to say here that it is one of the best textbooks of its kind recently issued. In it will be found much very practical and interesting information for owners of Ciné-Kodak, Filmo, Victor, Pathex, DeVry, Kinamo, Ernemann and other standard and sub-standard cameras and projectors. There is also much value in the new glossary which is a feature of this excellent volume.

THE EDITOR'S CORNER

The Editor's Christmas Message

At the Christmas season it is good for us all to count our blessings, to share them with our friends and neighbors, and to express our appreciation for the many acts of kindness and good will which have come our way during the year.

Those who have been kind enough to follow my efforts in the years that have passed know that when I wish our readers, subscribers, and advertisers a Very Merry Christmas and a Happy and Prosperous New Year, I mean every word. This year I wish to express my personal appreciation of the splendid co-operation given me by the Associate Editors, Mr. Wilfred A. French, Ph.D., Mr. Herbert C. McKay, A.R.P.S., and Mr. C. B. Neblette, A.R.P.S., during the trying period which usually follows a reorganisation of any kind. Then, too, our contributors have done their full share, in more ways than one, to help lighten my burden and work with us. We have all had to be patient while our plans and hopes were given the necessary time in which to grow to fruition. We are still far from our objective; but there is great encouragement in knowing that we have rendered some service this past year. If there is one thing for which I can feel more grateful than for many other blessings, it is for the loyal support given to us by our readers, subscribers, and advertisers. We have tried to make Photo-Era Magazine worth-while—to strike a new note in photographic journalism. Pioneering in any field of endeavor is usually accompanied by a certain number of disappointments and successes; and, sometimes, by criticism from those who misunderstand or who find it difficult to accept a departure from the regular routine. However, we have little reason to complain; for in many cases those who asserted that "it could not be done" have later congratulated us because "it was done".

We make no announcements, promises, or claims for 1928. We shall try sincerely to make each issue practical, entertaining, and stimulating. We believe in furthering every honest effort to promote still and motion-picture photography as an art and as a science. We believe that photography should be given a place in the curriculum of the high school, college, and technical school. We believe that photography should receive wider recognition from the industries. And, lastly, we believe that every man, woman, and child should be made to understand the artistic, practical, and inspirational value of photography.

Photography in Schools and Colleges

Perhaps some of our readers will question our including so much material relating to schools and colleges in connection with photographic activities or courses. We believe that the December issue is the place for this material this year, because of the widespread interest in the subject of photography as an art and a science which should be more widely taught and recognised. In December, schedules for the coming year are being made, and we believe that the articles contained in this issue will, in many cases, help to win the decision for photography. Pictorial photography at present does not need the encouragement which photography in education must have to overcome some opposition, misunderstanding, and ignorance on the part of some boards of education, trustees, headmasters, and teachers.

It should be apparent to every reader, subscriber and advertiser that the teaching of photography as an art, and as a science, in the schools and colleges of the United States would in a very short time result in a tremendous increase in the use of cameras and in the demand for photographic equipment and supplies.

Three Clubs Tied for First Place

When the decision of the judges of the October Competitions was announced it was found that three camera clubs were tied for first place in the race for the Photo-Era Trophy Cup. In September, the Seattle Camera Club made a flying start by being the first to score. However, in October, other camera clubs jumped into the race, with the result that the Seattle Camera Club is hard pressed, and the race is becoming really exciting. In the October Competitions, Dr. Max Thorek of the Fort Dearborn Camera Club, Chicago, won First Prize in the Advanced Competition The Third Prize was won by Walter E. Owen of the Brooklyn Institute, Brooklyn, N.Y. Many camera club members received Honorable Mention Certificates; but these do not count toward winning the Trophy Cup. The other prize-winners were not members of any camera club. The large number of entries in all three of our competitions was convincing proof that our readers are really interested, and appreciate this extra effort we are making to keep up photographic interest the year around. According to our records, the scores in the Photo-Era Trophy Cup Race are as follows:

Seattle Camera Club	1
Fort Dearborn Camera Club	1
Brooklyn Institute	1

Some Christmas-Gift Suggestions

This year we have prepared a very neat and attractive Christmas Greeting card which we provide for the convenience of our readers who are making gifts of a subscription to Photo-Era Magazine. The cover of the folder reveals a winter-scene made of a group of snow-covered pines from the frozen surface of Lake Winnipesaukee. Inside there is a Christmas message and an additional line to the effect that a year's subscription is being presented, and space for the name of the giver. Already Christmas subscriptions are coming in from our regular readers and subscribers. To avoid a last-moment rush we would appreciate receiving all such orders as soon as possible so that delivery may be made certain on Christmas-day. Please state when each subscription is to begin.

This year there are a number of new and excellent books on still- and motion-picture photography which will make unusually welcome gifts. We shall be very glad to answer questions with regard to these books and to help our readers make a suitable and acceptable selection for gifts.

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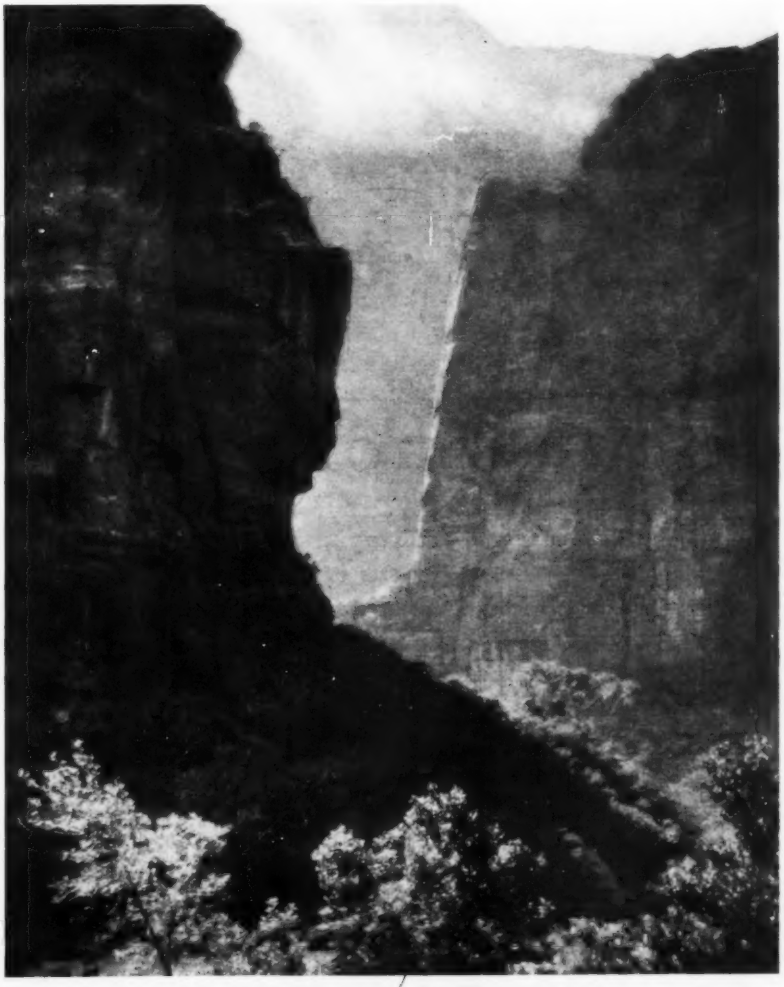

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